

**SONY®**

Operation Software

**BZDM-7720/3720**

**User's Guide**

Digital Multi Effects

**DME-7000/3000**

1st Edition English

Software Version 1.00 and Later

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# **Functions not supported in BZDM-7720/ 3720 Version 3.00**

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The following function described in this manual is not supported by Version 3.00 of the BZDM-7720/3720 Operation Software.

- Numeric keypad input of parameters using the KEY PAD button





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# Chapter 1

## Overview

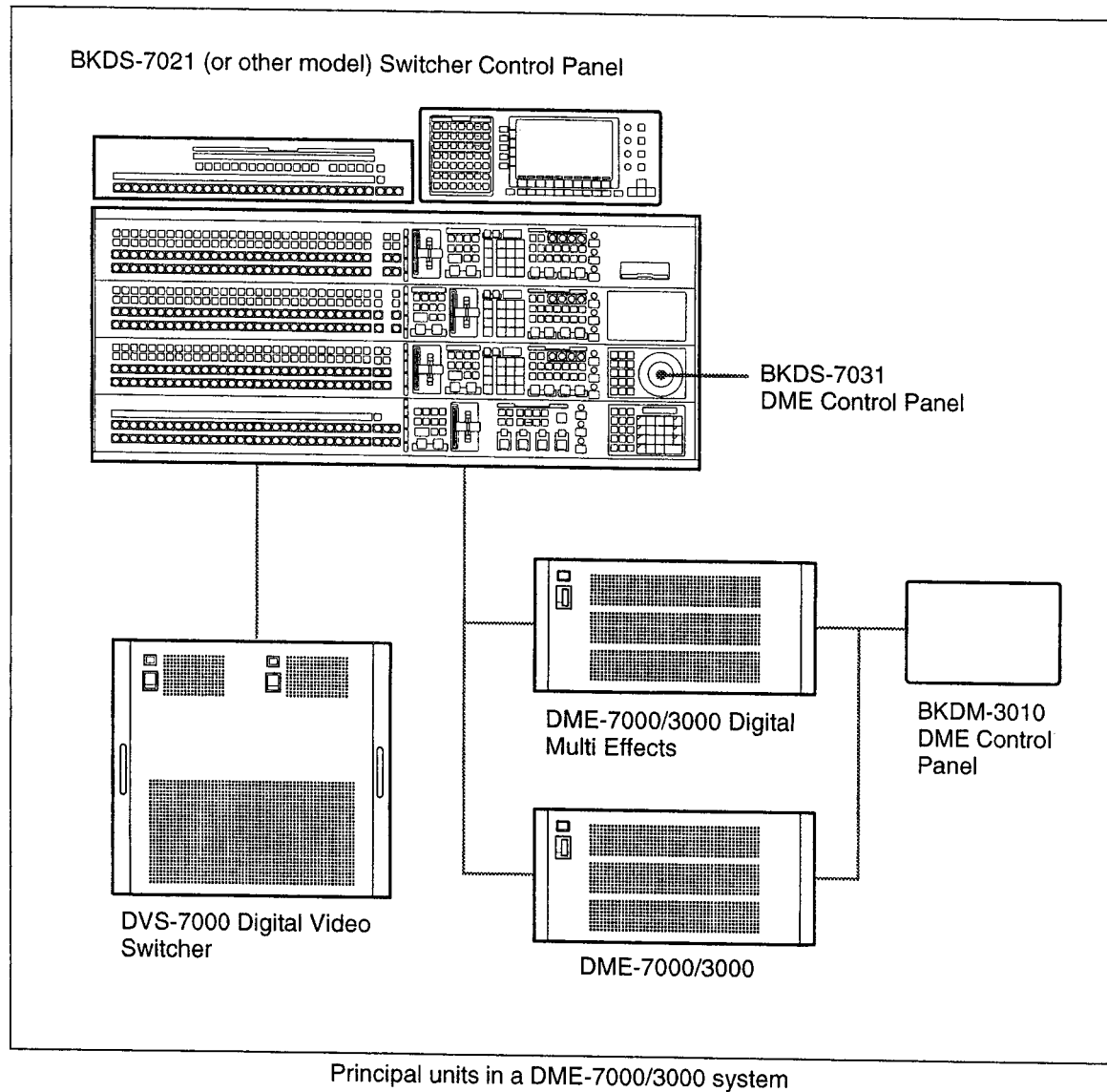
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# System Introduction

## Devices Making Up the System

The following figure shows the principal devices in a system using the BZDM-7720/3720.





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## Terms used in this manual

In this manual the following terms are used to refer to this software product and related devices.

Full product name	Term used in this manual
DME-7000 Digital Multi Effects DME-3000 Digital Multi Effects	"DME-7000/3000" or "DME"
DVS-7000 Digital Video Switcher	"Switcher"
BKDS-7011/7012/7021/7022/7023 Switcher Control Panel (including R-type and LR-type models)	"Switcher control panel"
BKDS-7031 DME Control Panel	"DME control panel"
BZDM-7720/3720 Operation Software	"Software"

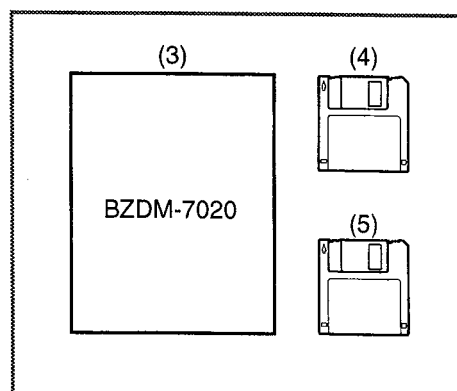
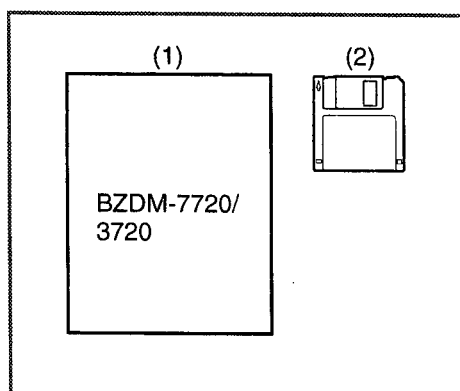
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## BZDM-7720 Product Overview

The BZDM-7720 Operation Software provides for control of a DME-7000 from the control panel of a DVS-7000 Digital Video Switcher with the BKDS-7031 DME Control Panel installed. The package also includes software which enables simultaneous operations from a BKDM-3010 DME Control Panel.

The following are included in the product:

- (1) BZDM-7720/3720 User's Guide (this manual)
- (2) BZDM-7720/3720 OPERATING PROGRAM 2 (packaged with (1))
- (3) BZDM-7020 User's Guide
- (4) BZDM-7020 SYSTEM DISK 1 (packaged with (3))
- (5) BZDM-7020 SYSTEM DISK 2 (packaged with (3))



## **System Introduction**

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### **When using the BKDM-3010 DME Control Panel**

All three of the above floppy disks ((2), (4) and (5)) are required.

Various aspects of the operations, menu displays, and so forth are different on the BKDM-3010 and BKDS-7031.

For details of the operations on the BKDM-3010, refer to the BZDM-7020 User's Guide.

Use this manual for details of the operations on the switcher control panel with the BKDS-7031 incorporated.

### **When not using the BKDM-3010 DME Control Panel**

Floppy disks (2) and (5) above are required.

Use this manual for details of operations. The BZDM-7020 User's Guide is not required.

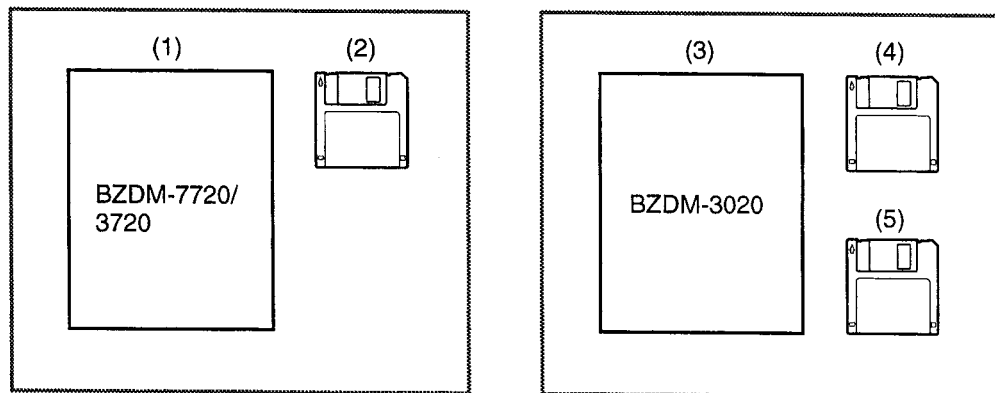
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## BZDM-3720 Product Overview

The BZDM-3720 Operation Software provides for control of a DME-3000 from the control panel of a DVS-7000 Digital Video Switcher with the BKDS-7031 DME Control Panel installed. The package also includes software which enables simultaneous operations from a BKDM-3010 DME Control Panel.

The following are included in the product:

- (1) BZDM-7720/3720 User's Guide (this manual)
- (2) BZDM-7720/3720 OPERATING PROGRAM 2 (packaged with (1))
- (3) BZDM-3020 User's Guide
- (4) BZDM-3020 SYSTEM DISK 1 (packaged with (3))
- (5) BZDM-3020 SYSTEM DISK 2 (packaged with (3))



### When using the BKDM-3010 DME Control Panel

All three of the above floppy disks ((2), (4) and (5)) are required.

Various aspects of the operations, menu displays, and so forth are different on the BKDM-3010 and BKDS-7031.

For details of the operations on the BKDM-3010, refer to the BZDM-3020 User's Guide.

Use this manual for details of the operations on the switcher control panel with the BKDS-7031 incorporated.

### When not using the BKDM-3010 DME Control Panel

Floppy disks (2) and (5) above are required.

Use this manual for details of operations. The BZDM-3020 User's Guide is not required.

## System Introduction

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### Features

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The following are some of the principal features of the DME-7000/3000 system.

#### **Three-dimensional image transformations**

The system offers a range of three-dimensional processes both with respect to the source coordinates (that is, the input video space) and the target coordinates (that is, the video space of the output), including shifting, rotation, and zoom functions. Smooth and accurate manipulation is provided by the x-y track ball and Z-ring.

#### **Special effects functions**

The following are some of the special effects you can apply to a video image:

- Background coloring and edge effects
- Freeze and strobe effects, using recursive memory functions, and afterimage effects
- Overall image effects (“multi move,” and defocussing, for example)
- Video and key signal transformations (negative image, mosaic effects, etc.)
- Various nonlinear effects (waves, page turns, and so forth)
- Lighting effects (spotlighting, target lighting, and so forth)

#### **Key frame effects**

With the optional BKDS-7030 Key Frame Control Panel installed in the switcher control panel, you can save picture positions and special effects as key frames. By building a series of key frames for appropriate points on the time axis, you can build and save an effect, for which the system automatically provides the interpolation between each successive pair of key frames.

#### **Editor interfaces**

You can use a BVE-2000, BVE-9100, or other editing control unit, for example, connected to either the Sony 9-pin remote interface or the GPI interface, for execution of key frame and other effects.

# Connections to the Switcher Control Panel

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The connection of the 9-way cable between the switcher control panel and the DME-7000/3000 is different depending on whether or not you are using a BKDM-3010 DME Control Panel.

## **When using the BKDM-3010 DME Control Panel**

Connect the 9-pin connector<sup>1)</sup> on the switcher control panel to the SWITCHER PANEL connector on the DME-7000/3000.

Connect the BKDM-3010 DME Control Panel to the CONTROL PANEL connector on the DME-7000/3000.

In this case, carry out the software installation (SYSTEM DISK 1 and 2) from the BKDM-3010.

## **When not using the BKDM-3010 DME Control Panel**

Connect the 9-pin connector<sup>1)</sup> on the switcher control panel to the CONTROL PANEL connector on the DME-7000/3000.

In this case the SWITCHER PANEL connector on the DME-7000/3000 is not used.

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1) Channels 1 and 2 are connected to the DME connector.  
Channels 3 and 4 are connected to the REMOTE2 connector.  
Channels 5 and 6 are connected to the REMOTE3 connector.

# Software Installation Requirements

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## Software Required for a DME-7000 System

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### When using the BKDM-3010 DME Control Panel

Carry out the following installations from the switcher control panel and the BKDM-3010 DME Control Panel.

#### **Installing OPERATING PROGRAM 2**

In place of the BZS-7020 OPERATING PROGRAM 2, use the BZDM-7720/3720 OPERATING PROGRAM 2 disk, and install it together with the BZS-7020 OPERATING PROGRAM 1 and OPERATING PROGRAM 3 disks from the switcher control panel.

*For details of the installation procedure, refer to the BZS-7020 User's Guide or the DVS-7000 Installation Manual.*

#### **Installing SYSTEM DISK 1 and SYSTEM DISK 2**

Install the BZDM-7020 SYSTEM DISK 1 and SYSTEM DISK 2 from the BKDM-3010 DME Control Panel.

*For details of the installation procedure, refer to the BZDM-7020 User's Guide. Use a similar installation procedure for the various DME option boards.*

### When not using the BKDM-3010 DME Control Panel

Using the switcher control panel, install the following two sets of software.

#### **Installing OPERATING PROGRAM 2**

In place of the BZS-7020 OPERATING PROGRAM 2, use the BZDM-7720/3720 OPERATING PROGRAM 2 disk, and install it together with the BZS-7020 OPERATING PROGRAM 1 and OPERATING PROGRAM 3 disks from the switcher control panel.

*For details of the installation procedure, refer to the BZS-7020 User's Guide or the DVS-7000 Installation Manual.*

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### **Installing SYSTEM DISK 2**

Install the BZDM-7020 SYSTEM DISK 2 from the switcher control panel.

*For details of the installation procedure, see the section “Installing System Software” (page 9-14) in this manual. Use a similar installation procedure for the various DME option boards.*

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## **Software Required for a DME-3000 System**

### **When using the BKDM-3010 DME Control Panel**

Carry out the following installations from the switcher control panel and the BKDM-3010 DME Control Panel.

#### **Installing OPERATING PROGRAM 2**

In place of the BZS-7020 OPERATING PROGRAM 2, use the BZDM-7720/3720 OPERATING PROGRAM 2 disk, and install it together with the BZS-7020 OPERATING PROGRAM 1 and OPERATING PROGRAM 3 disks from the switcher control panel.

*For details of the installation procedure, refer to the BZS-7020 User's Guide or the DVS-7000 Installation Manual.*

#### **Installing SYSTEM DISK 1 and SYSTEM DISK 2**

Install the BZDM-3020 SYSTEM DISK 1 and SYSTEM DISK 2 from the BKDM-3010 DME control panel.

*For details of the installation procedure, refer to the BZDM-3020 User's Guide. Use a similar installation procedure for the various DME option boards.*

## Software Installation Requirements

---

### When not using the BKDM-3010 DME Control Panel

Using the switcher control panel, install the following two sets of software.

#### **Installing OPERATING PROGRAM 2**

In place of the BZS-7020 OPERATING PROGRAM 2, use the BZDM-7720/3720 OPERATING PROGRAM 2 disk, and install it together with the BZS-7020 OPERATING PROGRAM 1 and OPERATING PROGRAM 3 disks from the switcher control panel.

*For details of the installation procedure, refer to the BZS-7020 User's Guide or the DVS-7000 Installation Manual.*

#### **Installing SYSTEM DISK 2**

Install the BZDM-3020 SYSTEM DISK 2 from the switcher control panel.

*For details of the installation procedure, see the section "Installing System Software" (page 9-14) in this manual. Use a similar installation procedure for the various DME option boards.*



# Channel Assignments

## DME-7000 Channel Assignments

### Connecting ports

The switcher control panel has three 9-pin ports as shown below, and two DME units can be connected to each, for a maximum total of six.  
DME, REMOTE2, REMOTE3

#### Option

Using the REMOTE2 and REMOTE3 connectors requires the BKDS-7001 Control Expansion Board.

### Physical channel settings

The physical channel settings are as follows. These settings are made with DIP switches on the DME-7000 processor CPU board.

Port name	Physical channel
DME	1, 2
REMOTE2	3, 4
REMOTE3	1, 2

### Logical channel settings

These assign a logical channel number to each physical channel.

#### When using a BKDM-3010 DME Control Panel

Assign the DME logical channels from the BKDM-3010 as follows. The logical channel numbers as seen from the switcher are automatically set to be as follows.

One BKDM-3010 can control up to four DME channels. For five or more channels, two BKDM-3010 units are necessary.

Port name	Physical channel	DME logical channel	Switcher logical channel
DME	1	1 <sup>a)</sup>	1
	2	2 <sup>a)</sup>	2
REMOTE2	3	3 <sup>a)</sup>	3
	4	4 <sup>a)</sup>	4
REMOTE3	1	1 <sup>b)</sup>	5
	2	2 <sup>b)</sup>	6

a) Make settings on first BKDM-3010.

b) Make settings on second BKDM-3010.

*For details of the DME logical channel assignments, refer to Chapter 10, "Setup", in the BZDM-7020 User's Guide.*

## Channel Assignments

---

### When not using a BKDM-3010 DME Control Panel

The logical channel numbers as seen from the switcher are automatically set according to the physical channels, to be as follows.

Port name	Physical channel	DME logical channel	Switcher logical channel
DME	1	1	1
	2	2	2
REMOTE2	3	3	3
	4	4	4
REMOTE3	1	1	5
	2	2	6

---

## DME-3000 Channel Assignments

### Connecting ports

The switcher control panel has three 9-pin ports as shown below, and two DME units can be connected to each, for a maximum total of six.  
DME, REMOTE2, REMOTE3

<b>Option</b>
---------------

Using the REMOTE2 and REMOTE3 connectors requires the BKDS-7001 Control Expansion Board.

### Physical channel settings

The physical channel settings are as follows. These settings are made with DIP switches on the DME-3000 processor CPU board.

Port name	Physical channel
DME	1, 2
REMOTE2	1, 2
REMOTE3	1, 2

---

## Logical channel settings

These assign a logical channel number to each physical channel.

### When using a BKDM-3010 DME Control Panel

Assign the DME logical channels from the BKDM-3010 as follows. The logical channel numbers as seen from the switcher are automatically set to be as follows.

One BKDM-3010 can control up to two DME channels. Thus to use all six channels requires three BKDM-3010 units.

Port name	Physical channel	DME logical channel	Switcher logical channel
DME	1	1 <sup>a)</sup>	1
	2	2 <sup>a)</sup>	2
REMOTE2	1	1 <sup>b)</sup>	3
	2	2 <sup>b)</sup>	4
REMOTE3	1	1 <sup>c)</sup>	5
	2	2 <sup>c)</sup>	6

a) Make settings on first BKDM-3010.

b) Make settings on second BKDM-3010.

c) Make settings on third BKDM-3010.

*For details of the DME logical channel assignments, refer to Chapter 10, "Setup", in the BZDM-3020 User's Guide.*

### When not using a BKDM-3010 DME Control Panel

The logical channel numbers as seen from the switcher are automatically set according to the physical channels, to be as follows.

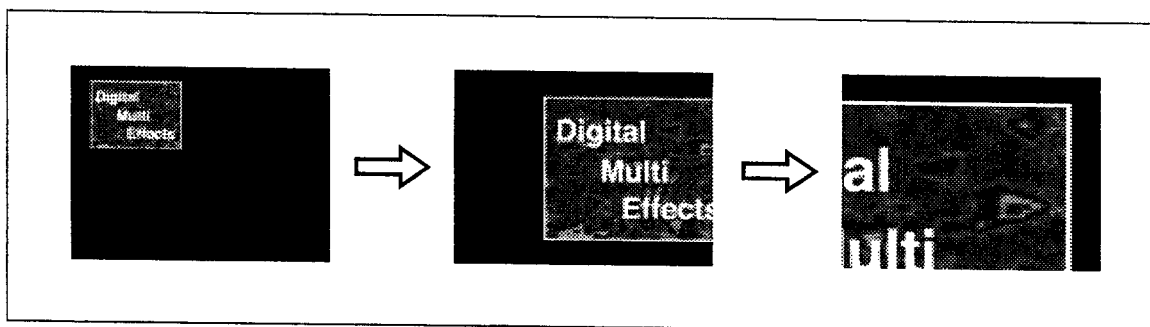
Port name	Physical channel	DME logical channel	Switcher logical channel
DME	1	1	1
	2	2	2
REMOTE2	1	1	3
	2	2	4
REMOTE3	1	1	5
	2	2	6

# Examples of DME-7000/3000 Effects

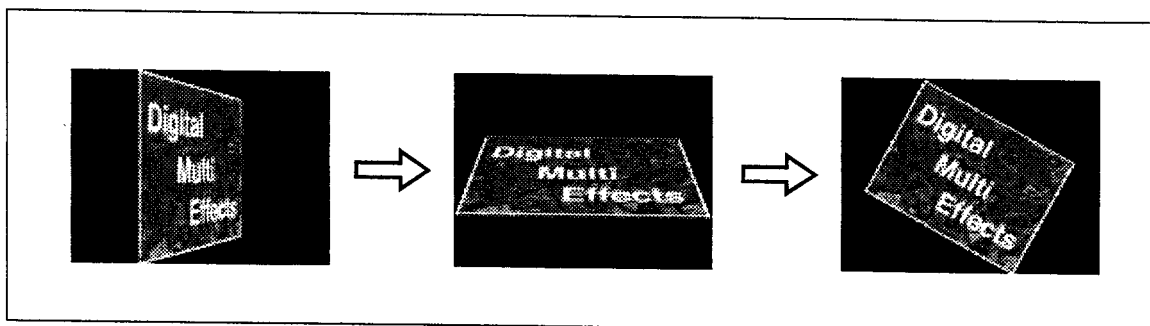
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This section illustrates some of the effects which the DME-7000/3000 can produce. It also refers to the page numbers (in parentheses) on which the corresponding procedures are described.

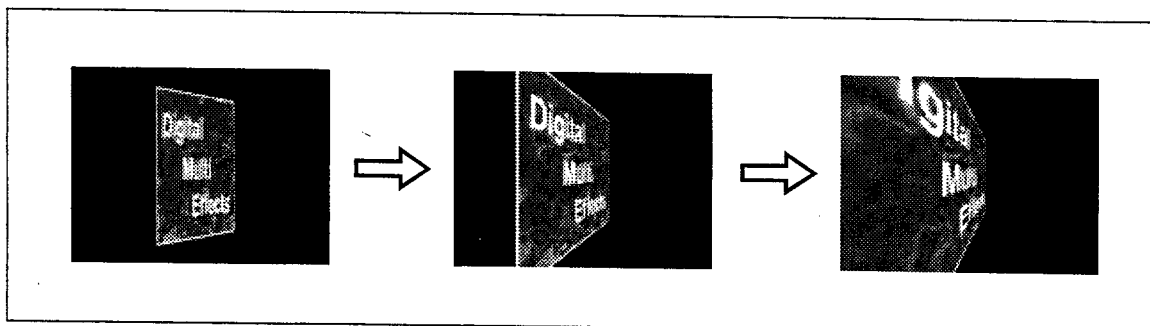
## Three-Dimensional Transformations



Displacement in 3-D space (page 3-8)



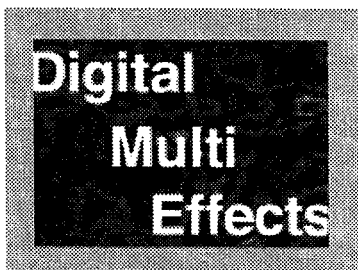
Rotation in 3-D space (page 3-10)



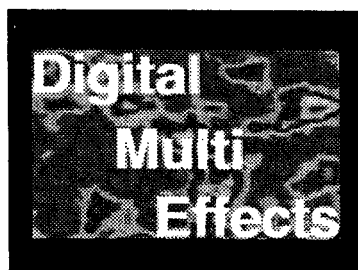
Perspective deformation (page 3-21)

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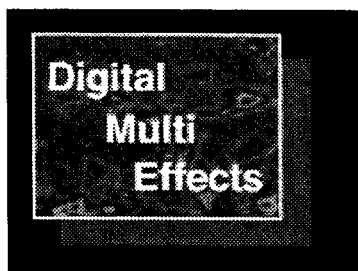
## Background and Edge Effects



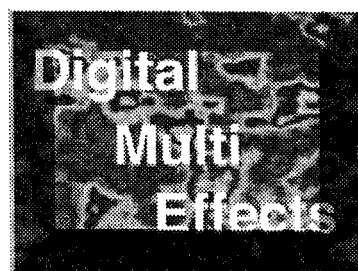
BORDER (page 4-14)



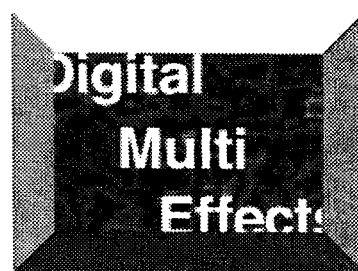
CROP (page 4-18)



DROP SHADOW (page 4-27)



BEVELED EDGE (MATTE)  
(page 4-34)



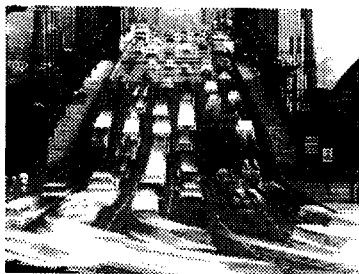
BEVELED EDGE (LIGHT)  
(page 4-34)

## Examples of DME-7000/3000 Effects

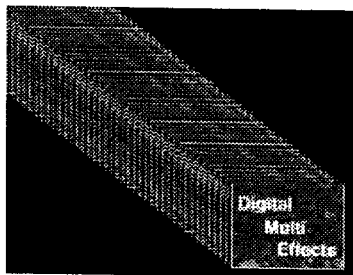
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### Freeze and Afterimage Effects

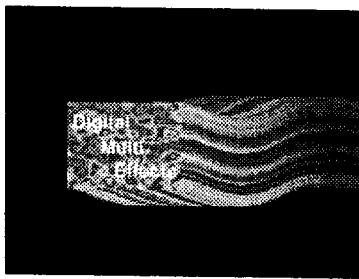
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MOTION DECAY (page 4-41)



TRAIL (page 4-46)



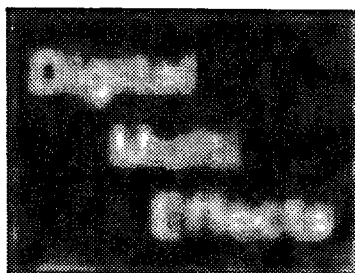
WIND (page 4-48)

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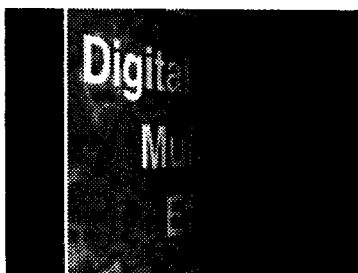
## Overall Image Effects



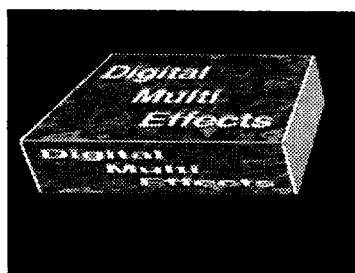
MULTI MOVE (page 4-55)



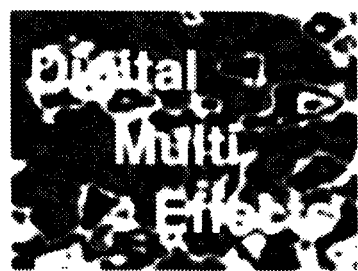
DEFOCUS (page 4-56)



FADE (page 4-60)



BRICK (page 4-67)

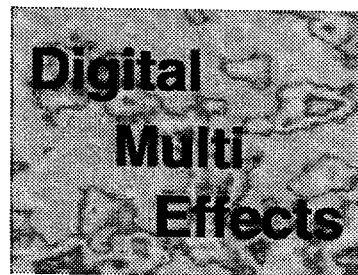
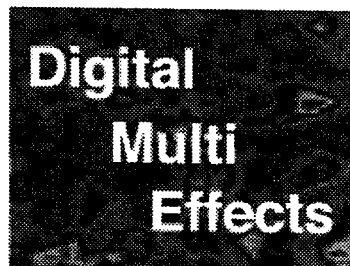


GLOW (page 4-73)

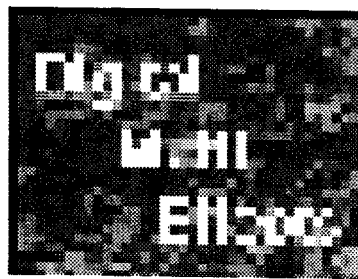
## Examples of DME-7000/3000 Effects

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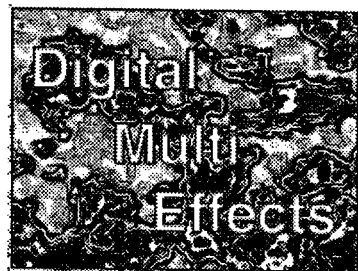
### Video Signal Effects



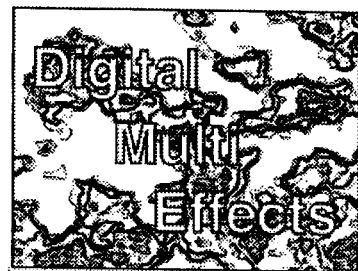
NEGA (page 4-76)



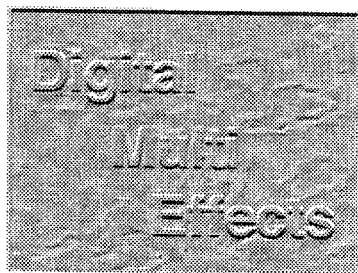
MOSAIC (page 4-82)



SKETCH (page 4-84)



DRAW (page 4-84)

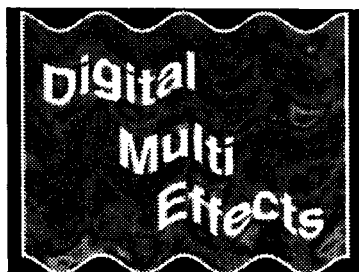


RELIEF (page 4-84)



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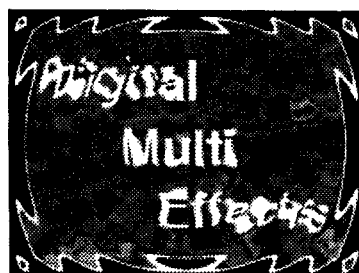
## Nonlinear Effects



WAVE (page 4-91)



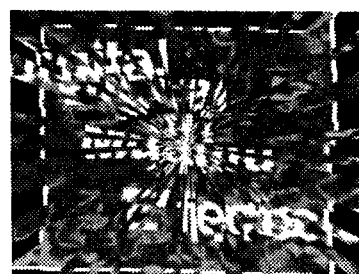
FLAG (page 4-98)



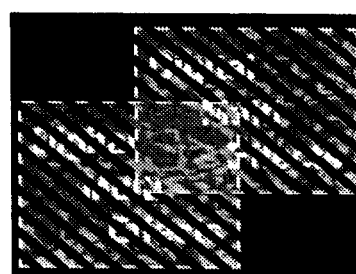
RIPPLE (page 4-99)



RINGS (page 4-101)



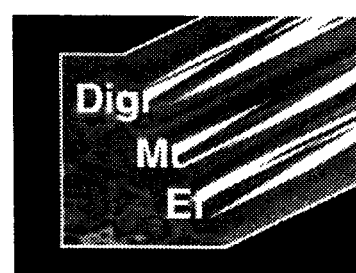
BROKEN GLASS (page 4-106)



FLYING BARS (page 4-107)



SPLIT (page 4-108)



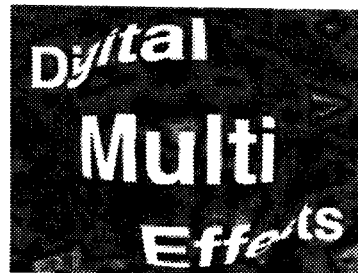
CHARACTER TRAIL (page 4-111)

## Examples of DME-7000/3000 Effects

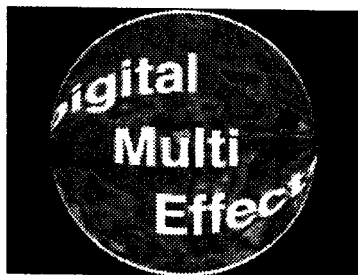
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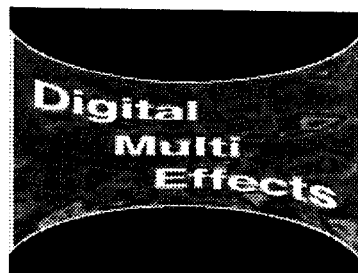
MIRROR (page 4-115)



LENS (page 4-116)



CIRCLE (page 4-118)



PANORAMA (page 4-119)



PAGETURN (page 4-123)



CYLINDER (page 4-126)



SPHERE (page 4-128)

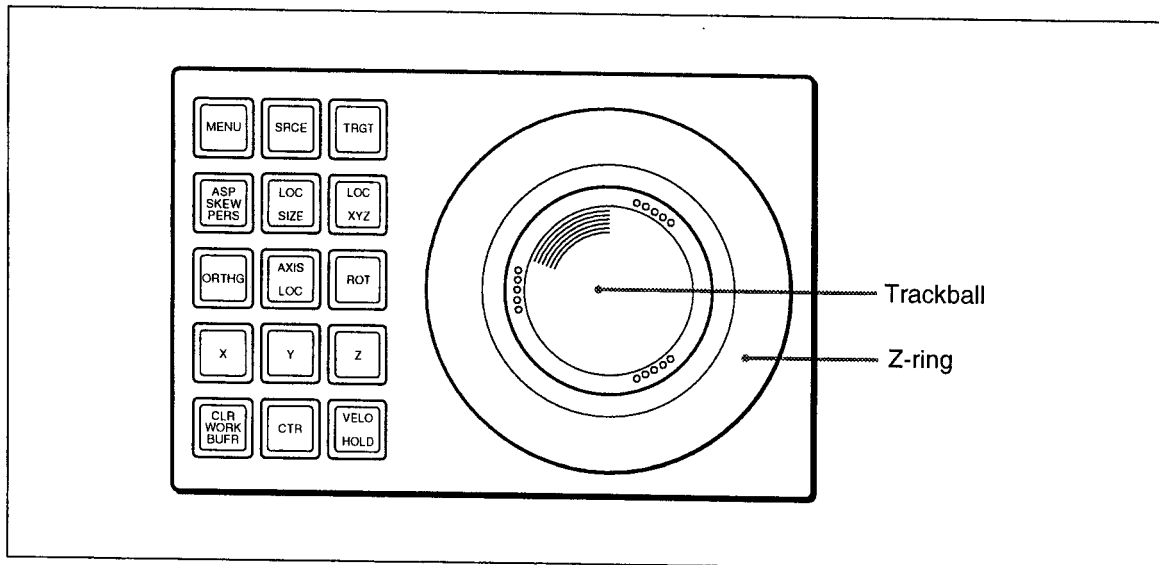
## **Chapter 2**

# **Location and Function of Parts**

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<b>BKDS-7031 DME Control Panel Unit .....</b>	<b>2-2</b>
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# BKDS-7031 DME Control Panel Unit



BKDS-7031 DME control panel unit

The controls of the DME control panel provide the following functions.

**Trackball:** When the SRCE button or TRGT button is lit, this controls the x- and y-axes of a three-dimensional transformation.

When the MENU button is lit, this adjusts parameter settings in a menu screen. The x-axis is allocated to knob 1 and the y-axis to knob 2.<sup>1)</sup>

**Z-ring:** When the SRCE button or TRGT button is lit, turning the Z-ring controls the z-axis of a three-dimensional transformation.

When the MENU button is lit, this adjusts the setting of knob 3 in a menu screen.<sup>1)</sup>

By holding down the MENU, SRCE or TRGT button and manipulating the

trackball and Z-ring, you can control the image movement more finely.

*For details of setting the degree of fineness, refer to Chapter 13, "Setup," of the BZS-7020 User's Guide.*

(The rest of this section describes the buttons from the upper left corner.)

**MENU button:** Pressing this button, turning it on, assigns the trackball and Z-ring to menu operations, so that they can be used to adjust parameter settings.<sup>1)</sup>

Knob 1 is assigned to X, knob 2 to Y, and knob 3 to Z.

Changing the menu ends this assignment, but it is possible to keep the trackball and Z-ring assigned to the menu operations by the following method.

1) This applies only to certain menus, such as the wipe positioner.

---

### **Assigning X, Y and Z parameters permanently**

With the trackball and Z-ring assigned to menu operations, press the MENU button twice in rapid succession.

The MENU button lights green. Even if you now change menus, it remains possible to use the trackball and Z-ring for adjusting the X, Y, and Z parameters.

**SRCE (source) button:** Allocates the trackball and Z-ring to transformation operation in the source coordinate frame, that is, the coordinates based on the video image itself.

**TRGT (target) button:** Allocates the trackball and Z-ring to transformation operation in the target coordinate frame, that is, the coordinates based on the output videospace on the monitor.

**ASP/SKEW/PERS (aspect/skew/perspective) button:** When this button and the SRCE button are lit, the trackball controls the skew of the image, and the Z-ring the aspect ratio. When the SRCE button is lit, by holding down the SHIFT button in the key frame control panel and pressing this button, lighting it green, the X, Y, and RATE parameters are displayed in the three-dimensional parameter section of the screen. You can then use the trackball to control the width and height of the image, and the Z-ring to control the aspect ratio. When this button and the TRGT button are lit, the trackball and Z-ring control the perspective of the image.

**LOC (locate) SIZE button:** When this button is lit, the Z-ring changes the size of the image, and the trackball moves the image in the x- and y-directions.

**LOC (locate) XYZ button:** When this button is lit, the trackball moves the image in the x- and y-directions and the Z-ring moves the image in the z-direction.

**ORTHG (orthogonal) button:** When this button is lit, the image moves only in the one of the x- and y-directions in which the trackball is moved more. In other words, this button can be used to perform movement in the x- or y-direction only. When this button is off, the movement of the image directly reflects the movement of the trackball.

**AXIS LOC (locate) button:** When this button is lit, the axis of rotation of the image is moved, in the x- and y-directions by the trackball, and in the x-direction by the Z-ring.

**ROT (rotation) button:** When this button is lit, the trackball rotates the image about the x- and y-axes, and the Z-ring about the z-axis. By holding down the SHIFT button in the key frame control panel and pressing this button, lighting it green, three-dimensional parameter indications in the menu screen change to SRCE SPIN or TRGT SPIN indications, and you can carry out "SPIN" operations (*see page 3-19*).

## BKDS-7031 DME Control Panel Unit

---

**X, Y, and Z buttons:** Use these buttons to restrict the axes which are affected by movement of the trackball and Z-ring.

Of these three buttons, only the last pressed one lights green, and the numeric keypad can be used to input coordinate data for the axis corresponding to the lit button.

**CLR WORK BUFR (clear working buffer) button:** Pressing this button once clears only the three-dimensional transformation parameters held in the working key frame buffer. Pressing it immediately a second time clears the remainder of the information held in the working key frame buffer, and returns to the initial state. In this state, you can use make new setup (*see page 9-6*) settings.

The working key frame buffer is an area of memory which holds the instantaneous state of the effect.

While the effect is positioned on a key frame, this corresponds to the contents of the key frame, and while the effect is between key frames, to a result of interpolation.

**CTR (center) button:** Pressing this button changes the current data values for the trackball or Z-ring positions to closest system-specified values (i.e. provides a detent function).

Immediately pressing this button a second time reverts to the system default values.

**VELO (velocity) HOLD button:** If you hold down this button, then move the trackball or Z-ring, the movement continues at a constant velocity even when you release the trackball or Z-ring as long as the button is down.

## Chapter 3

# Three-Dimensional Transformations

---

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# Transformation Basics

---

This section describes the basic procedures for carrying out three-dimensional transformations and the concepts of the coordinate spaces used.

---

## Basic Procedure

Three-dimensional transformations are carried out principally using the control panel. Page numbers for more detailed explanations are given in parentheses.

- 1** Select the channel to which the transformation is to apply in the numeric keypad section.
- 2** Press one of the following buttons in the DME control panel, turning it on, to select the coordinate frame for the transformation. (*See next page.*)
  - Source coordinate frame: SRCE button
  - Target coordinate frame: TRGT button

This assigns the trackball and Z-ring to transformation manipulation in the selected coordinate frame.

- 3** Press one of the following buttons, turning it on, according to the transformation you wish to carry out.
  - To move the image: LOC XYZ button (*page 3-8*)
  - To rotate the image: ROT button (*page 3-10*)
  - To move the rotation axes: AXIS LOC button (*page 3-14*)
  - To magnify or shrink the image: LOC SIZE button (*page 3-17*)
  - To change the aspect ratio or perspective: ASP/SKEW/PERS button (*page 3-19*)
- 4** If necessary, press any of the following buttons to restrict the scope of the transformation.
  - To restrict the transformation to particular axes: X, Y and Z buttons
  - To restrict the trackball movement to orthogonal directions (i.e. along the x- or y-axis only): ORTHG button



- 
- 5** Operate the trackball or Z-ring to make the transformation, as follows.
- To make an arbitrary two-dimensional movement, use the trackball.
  - To move along the x-axis only, move the trackball to left or right.
  - To move along the y-axis only, move the trackball up or down.
  - To move along the z-axis, turn the Z-ring.
  - To continue a transformation at a constant speed, hold down the VELO HOLD button.

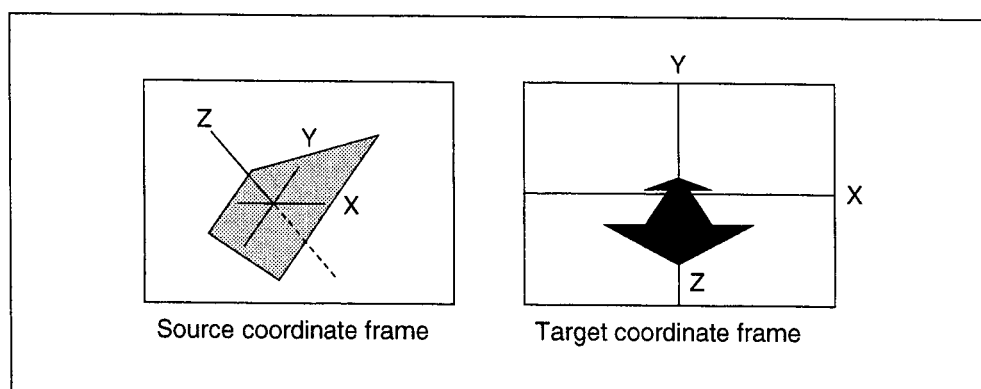
It is also possible to make a transformation without using the trackball or Z-ring, by entering x, y and z values from the numeric keypad. (See page 3-5.)

---

## Source Coordinate Frame and Target Coordinate Frame

All three-dimensional manipulations of a video image take place in either the source coordinate frame or the target coordinate frame.

- The source coordinate frame is with respect to the original input video image. That is, as the video image is rotated, for example, the coordinates rotate with respect to the output video space.
- The target coordinate frame is with respect to the output video space. These coordinates are thus fixed independently of manipulation of the video image.



Source coordinate frame and target coordinate frame

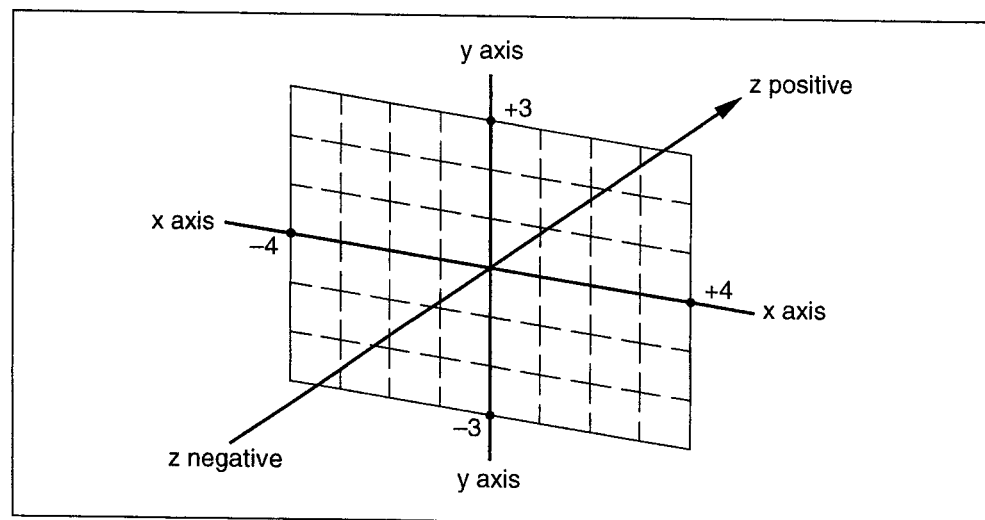
## Transformation Basics

### Three-Dimensional Coordinates

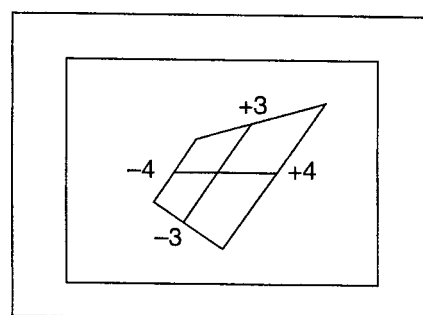
The figure below illustrates the x-, y- and z-coordinate values for each of the coordinate frames.

- In the source coordinate frame, the origin is at the center of the image, and the x- and y-coordinates range from  $-4$  to  $+4$  and  $-3$  to  $+3$  respectively over the area of the image. For a 16:9 aspect ratio image, however, these ranges are  $\pm 4$  and  $\pm 2.25$  respectively.
- In the target coordinate frame, the origin is at the center of the output video space, and the x- and y-coordinates range from  $-4$  to  $+4$  and  $-3$  to  $+3$  respectively over the area of the image. For a 16:9 aspect ratio image, however, these ranges are  $\pm 4$  and  $\pm 2.25$  respectively.

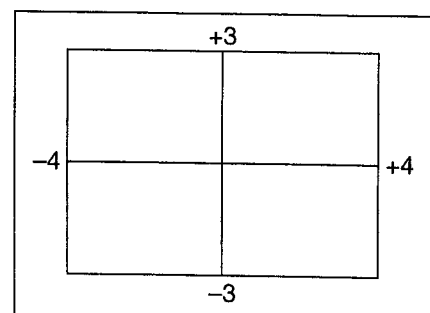
The limits for the x-, y- and z- coordinates are from  $-999$  to  $+999$ .



X-, y- and z- coordinate values



Source coordinate frame



Target coordinate frame

---

## Changing three-dimensional coordinate values with the numeric keypad

The three-dimensional coordinates for the reference channel are constantly displayed in the menu used for DME operations. (*See page 4-5.*)

You can carry out a transformation by changing these values with the numeric keypad, without using the trackball or Z-ring.

Use the following procedure to set coordinate values.

- 1** Press one of the X, Y or Z buttons, turning it on.

The pressed button lights green.

- 2** Enter the coordinate value for the selected axis from the numeric keypad.

You can enter a value with up to four decimal places. It is also possible to enter a difference from the current value.

- 3** If you entered the new value press the ENTER button, and if you entered a difference press the TRIM button.

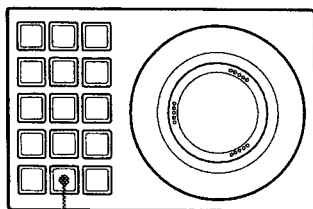
This changes the coordinate value, and the output video changes accordingly.

## Detent positions and resetting

The three-dimensional axes have detent positions specified at regular intervals along them.

Pressing the CTR button sets a coordinate value to the closest detent.

Immediately pressing the CTR button once more returns the three-dimensional parameter to the default value.



CTR button

## Transformation Basics

---

### Detent positions

The interval between successive detents depends on the transformation involved, as shown in the following table.

Function	Detent interval
Movement	1.0
Rotation	0.125 (45°)
Movement of rotation axes	1.0
Size change	0.25
Aspect ratio change	0.1
Perspective change	0.01

### Resetting of parameter values set in the source coordinate frame

After setting up a transformation in the source coordinate frame, if you switch to the target coordinate frame the coordinate values in the source coordinate frame are converted to values in the target coordinate frame. When you switch back to the source coordinate frame, the original source coordinate frame values are reset to zeros.

---

## Trackball and Z-Ring Control

You can restrict the axes controlled by the trackball and Z-ring, or constrain the way in which the image moves.

### Restricting a transformation to particular axes

To restrict the effect of the trackball and Z-ring on the transformation to particular axes, press one or two of the X, Y and Z buttons, turning them on.

### Restricting a transformation to orthogonal directions

To restrict the trackball movement to orthogonal directions (i.e. along the x- or y-axis only), press the ORTHG button, turning it on.

The image moves only in that of the x- and y-axes in which the trackball movement is greater.

---

## **Making fine adjustments**

To make the trackball and Z-ring adjustments finer than normal, hold down the MENU, SRCE or TRGT button in the key frame control panel while carrying out the operation.

You can vary the fineness from the switcher SETUP menu.

*For details, refer to the BZS-7020 User's Guide.*

## **Carrying out a transformation at a constant speed**

To continue a transformation at a constant speed, hold down the VELO HOLD button while turning the trackball or Z-ring.

The speed is detected, and then as long as you hold this button down the image continues to change at the same speed.

In the switcher SETUP menu you can set the speed stages.

*For details, refer to the BZS-7020 User's Guide.*

## **Other trackball and Z-ring settings**

In addition to the above functions, you can change the relationship between the trackball and Z-ring movement and the movement of the image.

*For details, refer to the BZS-7020 User's Guide.*

# Moving the Image

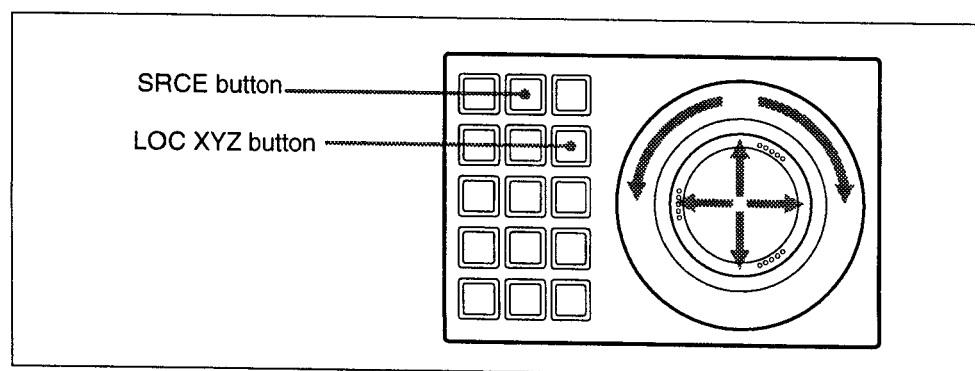
This section describes how to move the image in either the source or target coordinate frame.

## Moving in the Source Coordinate Frame

### Procedure

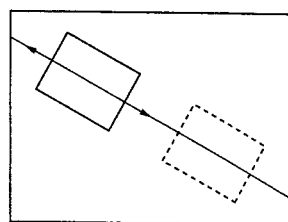
To move the image in the source coordinate frame, use the following procedure in the DME control panel.

- 1** Press the SRCE button, turning it on.
- 2** Press the LOC XYZ button, turning it on.  
If you wish to move the image in the x- and y-directions only, pressing the LOC SIZE button has the same effect.
- 3** Move the trackball to move the image in the x- and y-directions.  
Turn the Z-ring to move the image in the z-direction.

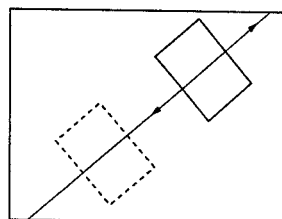


DME control panel operation

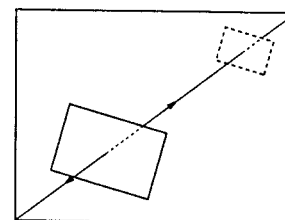
### Video change



Movement along the x-axis



Movement along the y-axis



Movement along the z-axis

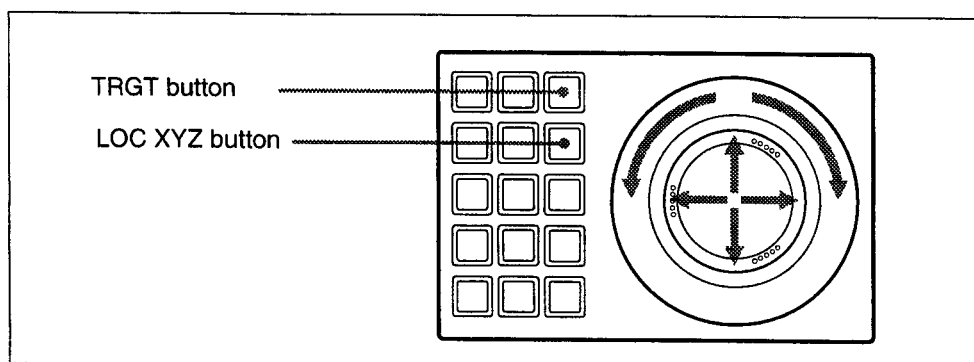
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## Moving in the Target Coordinate Frame

### Procedure

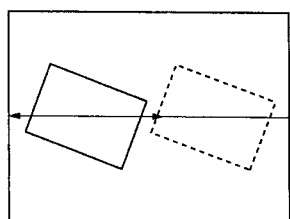
To move the image in the target coordinate frame, use the following procedure in the DME control panel.

- 1** Press the TRGT button, turning it on.
- 2** Press the LOC XYZ button, turning it on.  
If you wish to move the image in the x- and y-directions only, pressing the LOC SIZE button has the same effect.
- 3** Move the trackball to move the image in the x- and y-directions.  
Turn the Z-ring to move the image in the z-direction.

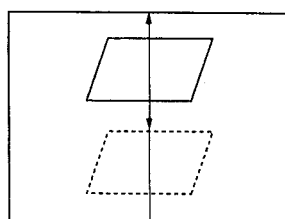


DME control panel operation

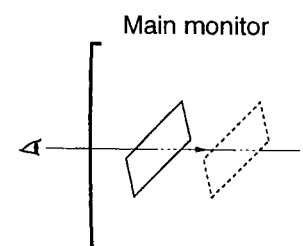
### Video change



Movement along the x-axis



Movement along the y-axis



Movement along the z-axis

# Rotating the Image

---

This section describes how to rotate the image in either the source or target coordinate frame.

When creating an effect in which the image rotates continuously, in order to specify the number of rotations use the SPIN function (*see page 3-22*).

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## Rotating in the Source Coordinate Frame

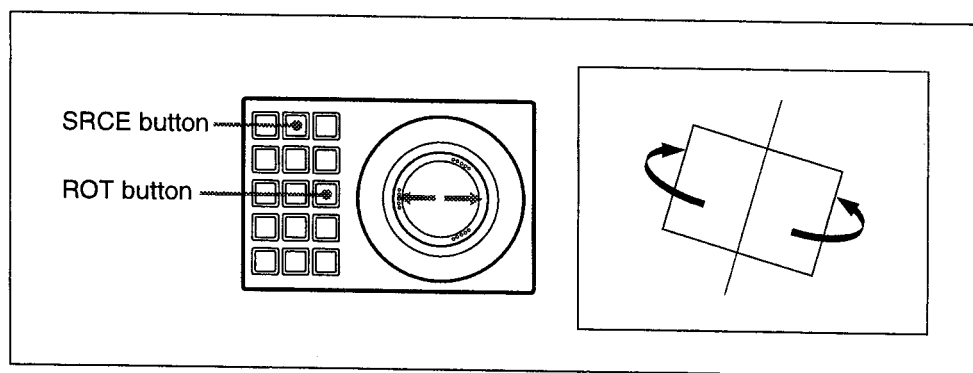
### Procedure

To rotate the image in the source coordinate frame, use the following procedure in the DME control panel.

- 1** Press the SRCE button, turning it on.
- 2** Press the ROT button, turning it on.
- 3** Move the trackball to rotate the image about the x- and y-axes.

Turn the Z-ring to rotate the image about the z-axis.

### Rotation about the y-axis

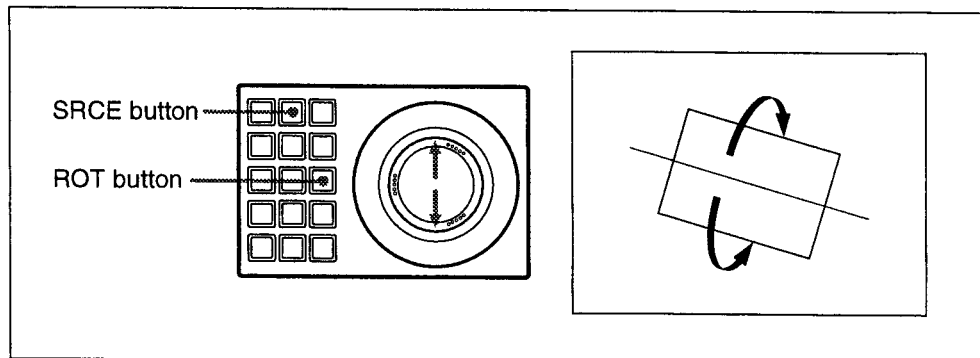


DME control panel operation and video change



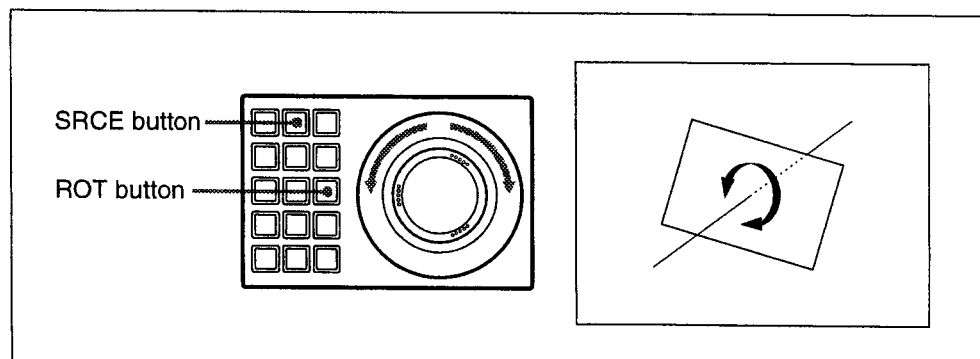
---

## Rotation about the x-axis



DME control panel operation and video change

## Rotation about the z-axis



DME control panel operation and video change

## Rotating the Image

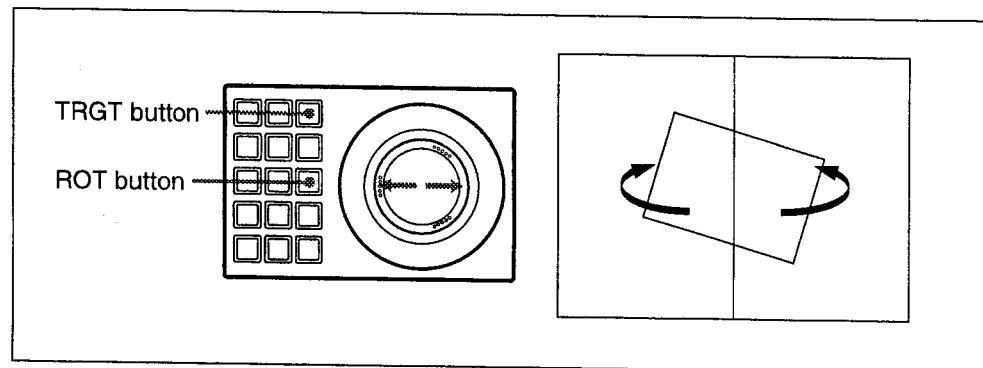
### Rotating in the Target Coordinate Frame

#### Procedure

To rotate the image in the target coordinate frame, use the following procedure in the DME control panel.

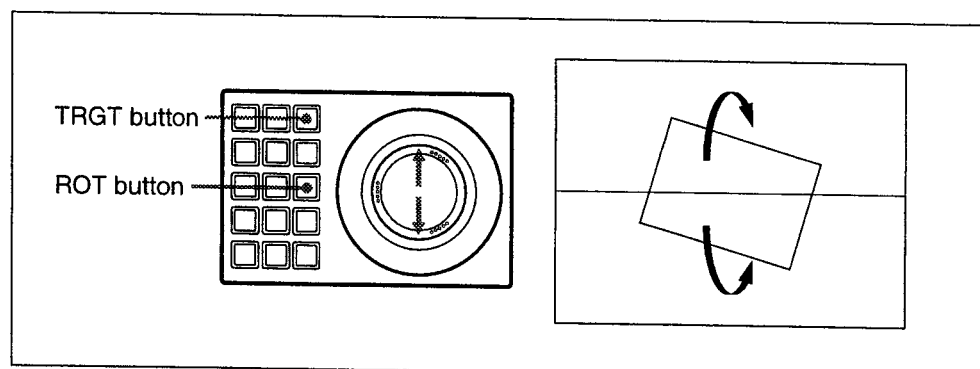
- 1** Press the TRGT button, turning it on.
- 2** Press the ROT button, turning it on.
- 3** Move the trackball to rotate the image about the x- and y-axes.  
Turn the Z-ring to rotate the image about the z-axis.

#### Rotation about the y-axis



DME control panel operation and video change

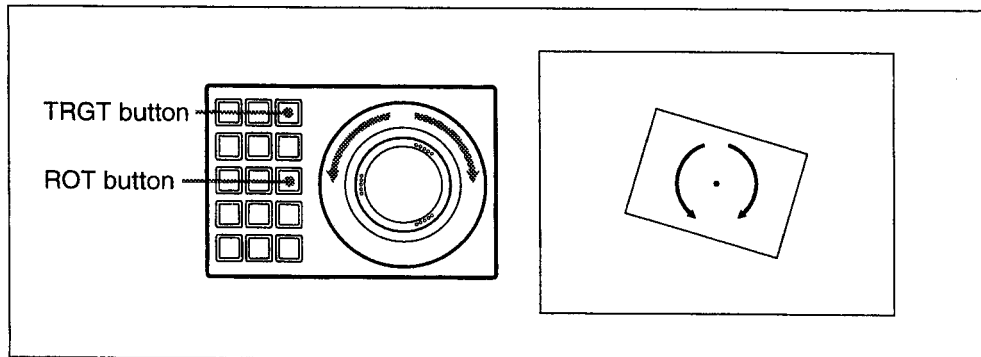
#### Rotation about the x-axis



DME control panel operation and video change

---

## Rotation about the z-axis



DME control panel operation and video change

# Moving the Axes of Rotation

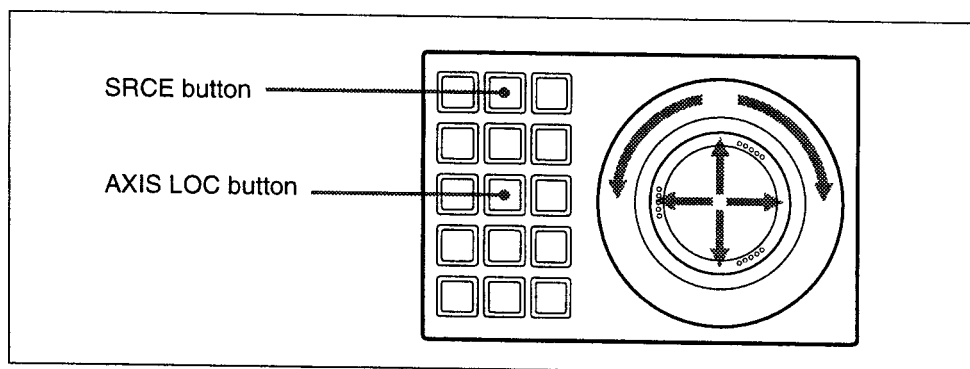
This section describes how to move the axes of rotation in either the source or target coordinate frame.

## Moving the Axes of Rotation in the Source Coordinate Frame

### Procedure

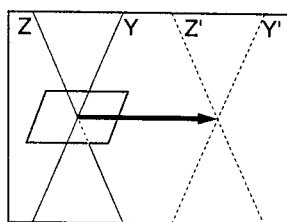
To move the axes of rotation in the source coordinate frame, use the following procedure in the DME control panel.

- 1** Press the SRCE button, turning it on.
- 2** Press the AXIS LOC button, turning it on.
- 3** Move the trackball to move the axes of rotation in the x- and y-directions.  
Turn the Z-ring to move the axes of rotation in the z-direction.

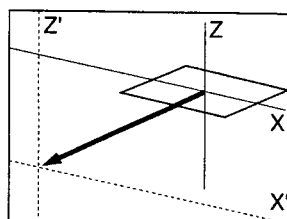


DME control panel operation

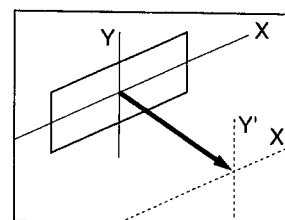
### Position change



Movement along the x-axis



Movement along the y-axis



Movement along the z-axis

---

**Note**

If you make a LOC SIZE or ROT setting in the target coordinate frame, then switch to the source coordinate frame and move the axes, the image itself also moves.

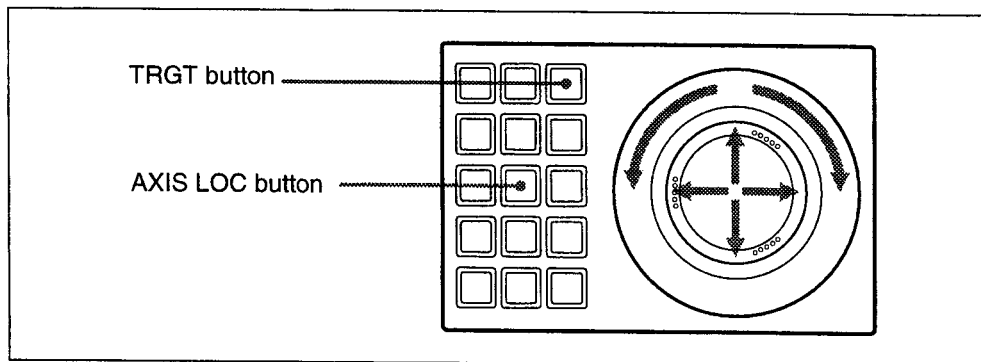
---

## Moving the Axes of Rotation in the Target Coordinate Frame

### Procedure

To move the axes of rotation in the target coordinate frame, use the following procedure in the DME control panel.

- 1** Press the TRGT button, turning it on.
- 2** Press the AXIS LOC button, turning it on.
- 3** Move the trackball to move the axes of rotation in the x- and y-directions.  
Turn the Z-ring to move the axes of rotation in the z-direction.

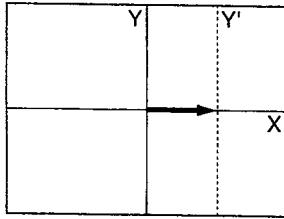


DME control panel operation

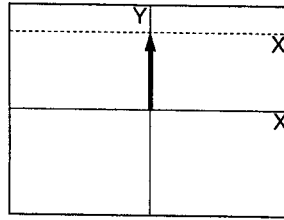
## Moving the Axes of Rotation

---

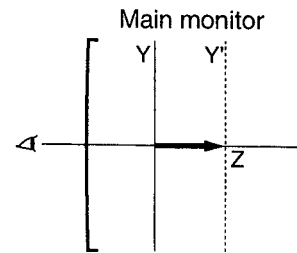
### Position change



Movement along the x-axis



Movement along the y-axis



Movement along the z-axis



## Magnifying or Shrinking the Image

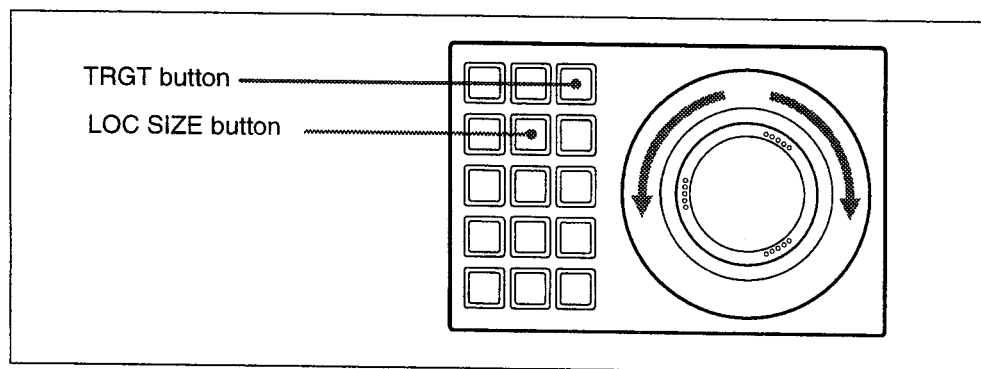
---

### Magnifying or Shrinking in the Target Coordinate Frame

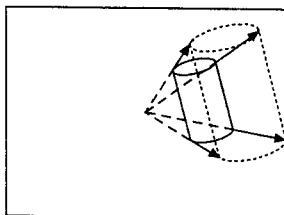
#### Magnifying or shrinking the image

To magnify or shrink the image in the target coordinate frame, use the following procedure in the DME control panel.

- 1** Press the TRGT button, turning it on.
- 2** Press the LOC SIZE button, turning it on.
- 3** Turn the Z-ring clockwise to magnify or counterclockwise to shrink the image.



DME control panel operation



Video change



# Changing the Skew, Aspect Ratio or Perspective of the Image

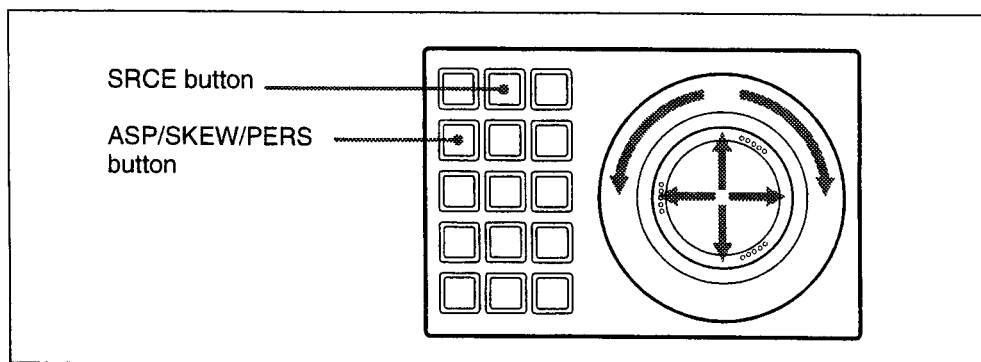
This section describes how to change the skew, aspect ratio or perspective of the image.

## Changing the Skew or Aspect Ratio of the Image

### Procedure

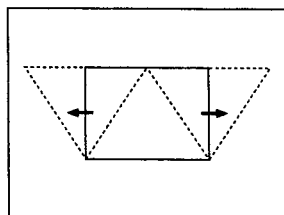
To change the skew or aspect ratio of the image, use the following procedure in the DME control panel.

- 1** Press the SRCE button, turning it on.
- 2** Press the ASP/SKEW/PERS button, turning it on.
- 3** Move the trackball in the x- and y-directions to change the skew of the image.  
Turn the Z-ring to change the aspect ratio.

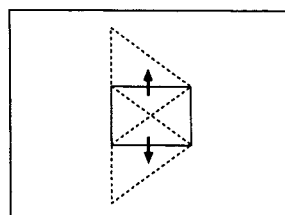


DME control panel operation

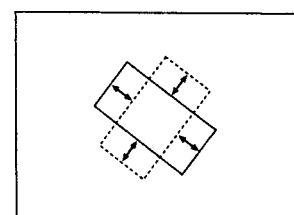
### Video change



Changing the skew in the x-direction



Changing the skew in the y-direction



Changing the aspect ratio

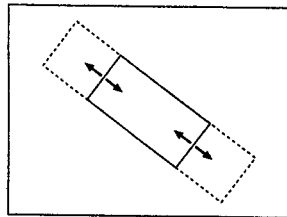
---

## Changing the size of the image in the x- and y-directions independently (X, Y, and RATE)

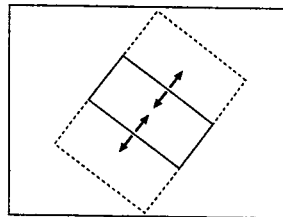
To adjust the size of the image in the x- and y-directions independently, in step 2 on the previous page, hold down the SHIFT button in the key frame control panel while pressing the ASP/SKEW/PERS button to light it green.

In this state, trackball operation adjusts the size of the image in the x- or y-direction only.

Aspect ratio adjustment with the Z-ring is the same as when you press the ASP/SKEW/PERS button alone (see previous page).



Change in the x-direction



Change in the y-direction

## Changing the Skew, Aspect Ratio or Perspective of the Image

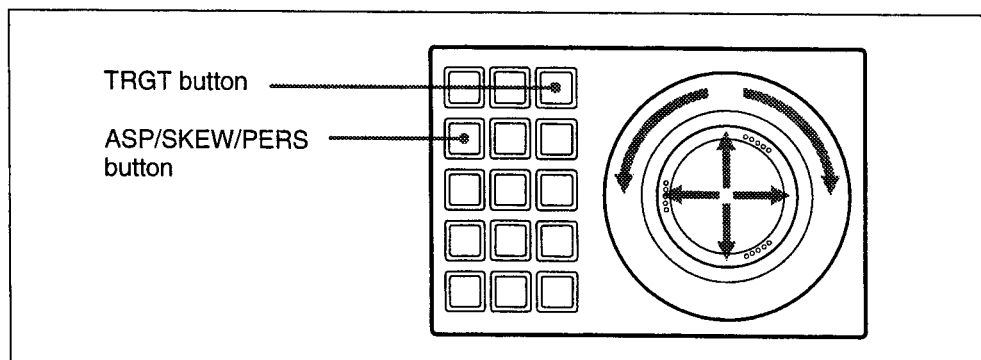
### Changing the Perspective

By moving the notional viewpoint of the image along the z-axis (in the target coordinate frame), you can change the apparent perspective of the image.

#### Procedure

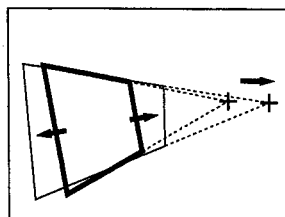
To change the perspective of the image, use the following procedure in the DME control panel.

- 1** Press the TRGT button, turning it on.
- 2** Press the ASP/SKEW/PERS button, turning it on.
- 3** Move the trackball to change the vanishing point in the x- and y-directions.  
Turn the Z-ring to change the perspective in the z-direction.

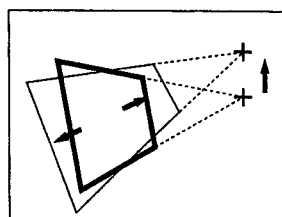


DME control panel operation

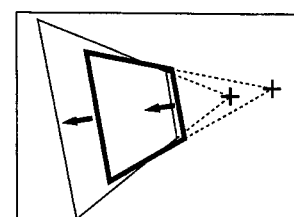
### Movement of the vanishing point or change in perspective



Change in the x-direction



Change in the y-direction



Change in the z-direction

# Setting Number of Rotations (SPIN Function)

---

When creating an effect involving rotation of the image, you can use the “SPIN” function to specify the number of rotations of the image. Using the ROT button in normal “ROTATION” mode, the image may not rotate correctly about the required axis, but using the SPIN function you can create effects in which the image rotates about a specified axis.

Use the following procedure to use the SPIN function to specify the number of rotations of the image.

- 1** To set the number of rotations in the source coordinate frame, press the SRCE button, turning it on.  
To set the number of rotations in the target coordinate frame, press the TRGT button, turning it on.
- 2** Hold down the SHIFT button in the key frame control panel while pressing the ROT button.  
  
The ROT button lights green.
- 3** To cause a spin about the x- or y-axis, turn the trackball. To cause a spin about the z-axis, turn the Z-ring.

To exit from the SPIN function, press any of the buttons used for transformations (including the ROT button).

## Chapter 4

# Special Effects Operations

---

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### Special Effects Operations

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### Special Effects Operations

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# Using Menus

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Most special effects operations involve the use of menus.  
Basic operation of the menus is the same as for the various switcher menus.  
This section describes only the points specific to DME operations.

*For details of basic operations, refer to Chapter 3, “Basic Menu Operations,” in the BZS-7020 User’s Guide.*

## Recalling a menu

Press one of the top menu selection buttons in the switcher control panel.  
The following table lists the buttons and menus used for DME operations.

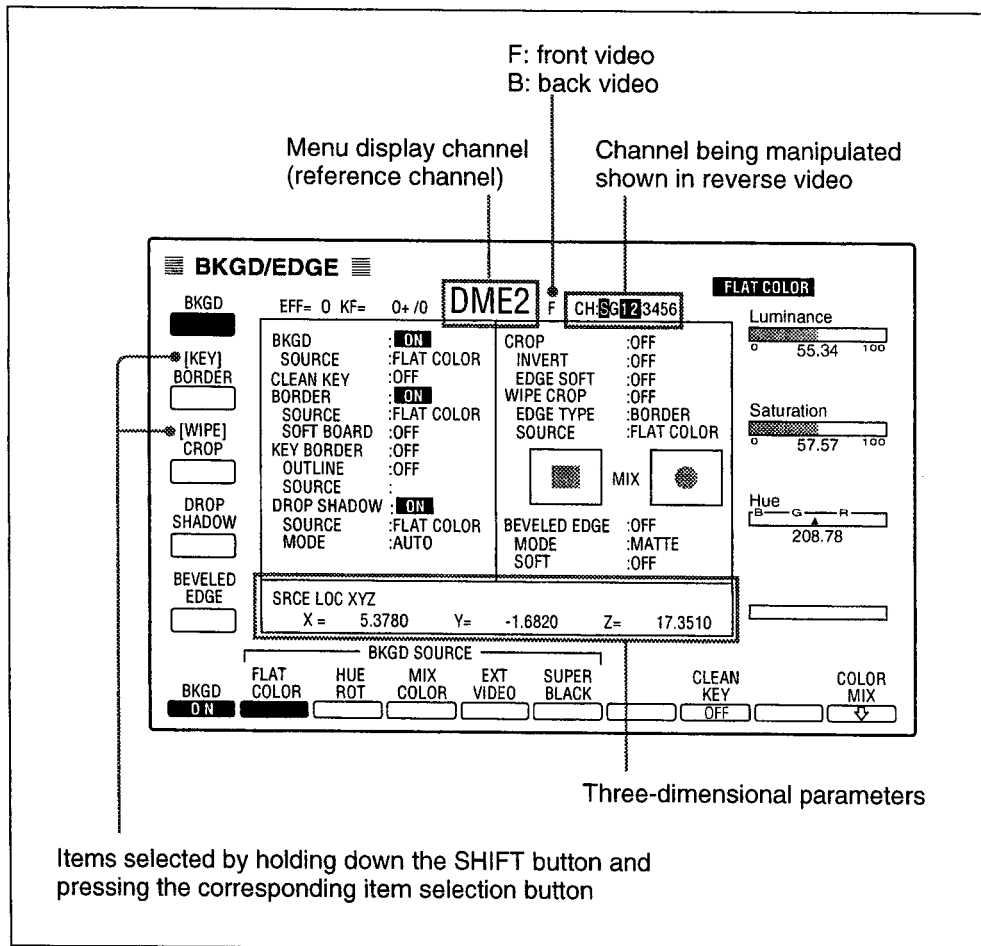
Top menu selection buttons and menus used for DME operations

Button	Menu name	Function	See page
BKGD EDGE	BKGD & EDGE	Background and edge operations	4-7
FREEZE RECUR	FREEZE & RECURSIVE	Freeze frame and afterimage effects	4-37
PIC MOD	PICTURE MODIFY	Deformations of the overall image	4-54
VIDEO MOD	VIDEO MODIFY	Deformations of the video signal	4-75
NON-LINEAR	NONLINEAR	Nonlinear effects	4-88
GRAPH	GRAPHIC	Graphics wire frame displays	4-133
LIGHT EFF	LIGHT EFFECT	Lighting effects	4-139
IN OUT	IN/OUT	Input and output signal operations	5-2
DME STATS	DME STATUS	Status display	8-2
DME SETUP	DME SETUP	Setup operations	9-2



## Example menu display

As an example, pressing the BKGD EDGE button produces the following display.



Example of BKGD & EDGE menu display

## Item selection and indications in this manual

- **Items selected by pressing the item selection button alone**  
In the example shown above, pressing item selection button 2 on its own selects the corresponding item "BORDER". This is shown as "2 (BORDER)".
- **Items selected by holding down the SHIFT button and pressing the item selection button**  
In the example shown above, holding down the SHIFT button and pressing item selection button 2 selects the item "KEY". This is shown as "SHIFT 2 (KEY)".

## Using Menus

---

### Channel selection

To select the channel or channels subject to DME operations, use the buttons in the switcher control panel numeric keypad section.

#### Selecting the channel

With the EFF button or SNAPSHOT button lit, press any of the DME1 to DME6 and DME GLBL buttons from among the subregister selection buttons. If you press multiple buttons, the corresponding channels are all selected.

#### Selecting the menu display channel

When you have selected multiple channels, only the reference channel is shown on the menu display.

The button for the reference channel lights green, and the buttons for the other selected channels light amber.

To change the reference channel, hold down the EFF button or SNAPSHOT button, and press the desired channel button.

# Background and Edge Effects

---

This section describes how to operate the background and edge effects.

---

## Effect Selection

### Top menu selection

The background and edge effects are selected from the BKGD & EDGE menu.

In the BKGD & EDGE menu, press the required item selection button as shown in the following table to select the effect.

For items indicated by “SHIFT,” hold down the SHIFT button and press the item selection button.

Item	Function	Setting
1 (BKGD)	Adjust background color.	4-8
2 (BORDER)	Apply a border to the image.	4-14
SHIFT 2 (KEY)	Apply a border to an external key	4-16
3 (CROP)	Use a frame to crop the image.	4-18
SHIFT 3 (WIPE)	Use a wipe pattern to crop the image.	4-20
4 (DROP SHADOW)	Apply a drop shadow to the image.	4-27
5 (BEVELED EDGE)	Apply a beveled edge to the image.	4-34

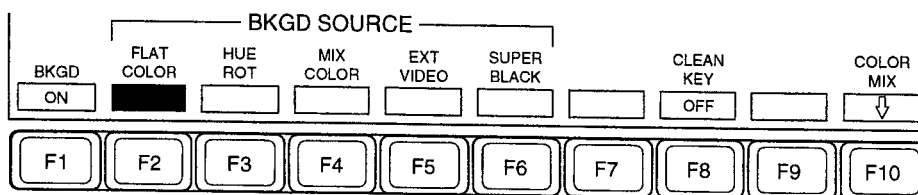
<b>Option</b>
---------------

- SHIFT 2 (KEY) is only effective when the BKDM-7060 and BKDM-7070 options are installed.
- SHIFT 3 (WIPE) is only effective when the BKDM-3040 option is installed.
- Item 5 (BEVELED EDGE) is only effective when the BKDM-7041 option is installed.

## Background and Edge Effects

### BKGD (Background) Settings

In the BKGD & EDGE menu, select item 1 (BKGD) to display the BKGD menu.



Function key indications in the BKGD menu

#### Option

- F4 (MIX COLOR) and F10 (COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F5 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

The following are some of the operations carried out in this menu.

#### Toggle the background on and off – F1 (BKGD)

Press F1 (BKGD).

When the background is on, the following settings for F2 to F10 are enabled.

#### Selecting a single-color background – F2 (FLAT COLOR)

Use the following procedure.

- 1 Press F2 (FLAT COLOR).
- 2 Adjust the parameters as follows.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

---

### Selecting a background with a changing color – F3 (HUE ROT)

Use the following procedure.

- 1 Press F3 (HUE ROT).
- 2 Adjust the parameters as follows.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Speed	Set rate of change of hue per frame (–12.00 to +12.00)

### Using a mix color for the background – F4 (MIX COLOR), F10 (COLOR MIX)

To use a color gradation created with the color mix function (*see next page*), use the following procedure.

- 1 Press F4 (MIX COLOR).
- 2 To adjust the mix color, press F10 (COLOR MIX) to display the COLOR MIX menu.

*For details, see next page.*

### Using an external video signal for the background – F5 (EXT VIDEO) (component systems only)

To use the video signal input to the COMBINER INPUTS EXT/C connector on the rear panel of the processor as the background, press F5 (EXT VIDEO).

### Selecting a super-black background – F6 (SUPER BLACK)

Use the following procedure.

- 1 Press F6 (SUPER BLACK).
- 2 Adjust the following parameter.

Knob	Parameter	Setting
1	Level	Set super-black level (–40.00 to 0.00)

## Background and Edge Effects

---

### Setting the background to black for a clean key – F8 (CLEAN KEY)

When sending a DME video output and key output to the switcher to combine them using a clean key, press F8 (CLEAN KEY), turning it on.

The background becomes black.

#### Note

When F1 (BKGD) is set to “OFF”, the DME video output produces a video image with sharp edges, and the key signal has an image with the key projecting slightly outside. This is so that when F1 (BKGD) is set to “ON”, or when the DME image is used for keying on the switcher, it is possible to apply soft edge processing to the image.

The clean key mode is a mode in which without setting F1 (BKGD) to ON, the DME image edges are made soft, and the DME image can be used for keying on the switcher.

## COLOR MIX settings

The term “COLOR MIX” is used to refer to the function which combines two matte colors to form a gradation. The signal produced by this COLOR MIX function is termed a “MIX COLOR,” and can be used for any of the background, border, drop shadow, key border, wipe crop, trail, glow, brick, page turn, roll, cylinder, sphere, spotlighting, target lighting, target spotlighting, and sepia effects.

Since a special-purpose pattern generator is used for a color mix, a different pattern (“mix pattern”) from the pattern for a wipe crop or mask can be selected.

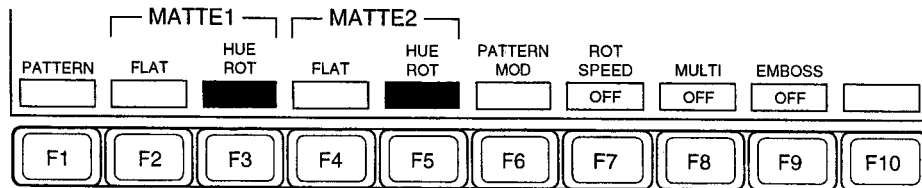
#### Option

This function requires the BKDM-3040 option.

#### Notes

- When you select MIX COLOR for one effect, another effect for which MIX COLOR was selected automatically changes to FLAT COLOR.
- When you are using MIX COLOR for a background, drop shadow, trail, key border, glow, or brick, and select MIX COLOR for a different effect, there is a one-frame delay before the color appears.

In the BKGD menu press F10 (COLOR MIX), to display the COLOR MIX menu.



Function key indications in the COLOR MIX menu

The following are some of the operations carried out in this menu.

### Selecting the mix pattern – F1 (PATTERN)

Press F1 (PATTERN), and use the knobs to adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set pattern size (0.00 to 100.00)
2	Soft	Set the degree of softness of the edge (0.00 to 100.00)
4	Pattern No	Set the pattern number (1, 3, 5 to 10, 13 to 19, 21 to 24)

For the patterns corresponding to pattern numbers, see the appendix “Wipe/ Mix Patterns” (page A-2).

### Creating the matte 1 color – F2 (FLAT), F3 (HUE ROT)

Use the following procedure.

- 1 To use a single hue for matte 1 press F2 (FLAT), and to use a varying hue press F3 (HUE ROT).
- 2 Adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue (when “FLAT” selected)	Set hue (0.00 to 359.99)
	Speed (when “HUE ROT” selected)	Set rate of change of hue per frame (–12.00 to +12.00)

## Background and Edge Effects

---

### Creating the matte 2 color – F4 (FLAT), F5 (HUE ROT)

Use the following procedure.

- 1 To use a single hue for matte 2 press F4 (FLAT), and to use a varying hue press F5 (HUE ROT).
- 2 Adjust the parameters.

*The method of parameter setting is the same as for matte 1. See the previous item.*

### Changing the position or orientation of the pattern – F6 (PATTERN MOD), F7 (ROT SPEED)

Use the following procedure.

- 1 Press F6 (PATTERN MOD).
- 2 To rotate the pattern set F7 (ROT SPEED) to “ON”.
- 3 Use the knobs to adjust the following parameters.

Knob	Parameter	Setting
1	X <sup>a)</sup>	Set x-coordinate of pattern center position (–8.00 to +8.00)
2	Y <sup>a)</sup>	Set y-coordinate of pattern center position (–8.00 to +8.00)
3	Aspect <sup>a), b)</sup>	Set aspect ratio of pattern (–100.00 to +100.00)
4	Angle (when F7 is “OFF”)	Set direction and amount of pattern rotation (–8.00 to +8.00)
	Speed (when F7 is “ON”)	Set rate of rotation of pattern per frame (–12.00 to +12.00)

a) Only valid for pattern numbers 17 (X only), 18 (Y only), and 21 to 24.

b) Only valid for pattern numbers 9, 10, 13 to 16, and 19 to 24.



---

### Replicating the pattern – F8 (MULTI)

Use the following procedure.

- 1** Set F8 (MULTI) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	H Multi	Set number of replicated patterns horizontally (1 to 15)
2	V Multi	Set number of replicated patterns vertically (1 to 15)
3	Shift	Set replication layout (1 to 4) (page 4-26)

### Applying an embossing effect – F9 (EMBOSS)

This applies an embossed effect to matte 1. Matte 2 is unaffected.

Use the following procedure.

- 1** Set F9 (EMBOSS) to “ON”.
- 2** Use the knobs to adjust the following parameters.

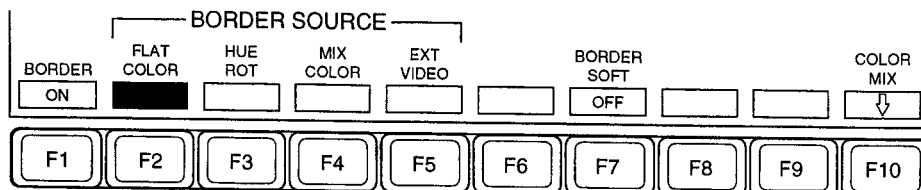
Knob	Parameter	Setting
1	Strong	Set the strength (–100.00 to +100.00)
2	Width	Set the width (0.00 to 100.00)
3	Size <sup>a)</sup>	Set the size (0.00 to 100.00)
4	Type	Set the type (1 to 8)

a) When “EMBOSS” is set to “ON,” the “Size” parameter is always the same as the “Size” parameter for F1 (PATTERN) when “EMBOSS” is set to “OFF.”

## Background and Edge Effects

### BORDER Settings

In the BKGD & EDGE menu, select item 2 (BORDER) to display the BORDER menu.



Function key indications in the BORDER menu

#### Option

- F4 (MIX COLOR) and F10 (COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F5 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

The following are some of the operations carried out in this menu.

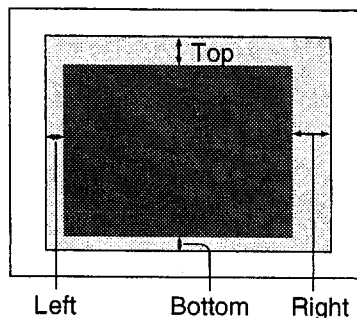
#### Applying a border – F1 (BORDER)

This applies a border to the frame position specified as the crop position (*see page 4-18*).

Use the following procedure. The positive direction is defined as on the inside of the frame and the negative direction is defined as on the outside.

- 1 Set F1 (BORDER) to “ON”.
- 2 Use the knobs to adjust the following parameters.

Knob	Parameter	Setting
1	H	Set same width for left and right edge borders.
2	V	Set same width for top and bottom edge borders.
3	All	Set same width for all four edge borders.
4	Density	Set border density (0.00 to 100.00)
1	Top	Set width of top edge border. (–0.20 to +8.00)
2	Left	Set width of left edge border. (–0.20 to +8.00)
3	Right	Set width of right edge border. (–0.20 to +8.00)
4	Bottom	Set width of bottom edge border. (–0.20 to +8.00)



### Selecting the signal for the border – F2 (FLAT COLOR) to F5 (EXT VIDEO)

Press one of F2 (FLAT COLOR) to F5 (EXT VIDEO) and adjust the parameters as required.

*The significance of the parameters and their setting ranges are the same as for a background. For details, see the section “BKGD Settings” (page 4-8).*

### Softening the border – F7 (BORDER SOFT)

Use the following procedure.

**1** Set F7 (BORDER SOFT) to “ON”.

**2** Adjust the following parameters.

Knob	Parameter	Setting
1	Inner Soft	Set degree of softening of inner edge (0.00 to 100.00)
2	Outer Soft	Set degree of softening of outer edge (0.00 to 100.00)
3	All	Set degree of softening of inner and outer edges
4	Density	Set border density (0.00 to 100.00)

#### Option

Knob 2 (Outer Soft) is only effective when the BKDM-7060 (BKDM-3060 for DME-3000) option is installed.

## Background and Edge Effects

### KEY BORDER Settings

This provides a border around a key, or a key which is an outline only.

#### Option

This function requires the BKDM-7060 and BKDM-7070 options.

#### Notes

- The following effects use the same hardware as a key border, and it is therefore not possible to use more than one of them simultaneously.  
Drop shadow (3D), Key border, Glow, Brick
- This function is not available on the DME-3000.

In the BKGD & EDGE menu, hold down the SHIFT button and select item 2 (KEY) to display the KEY BORDER menu.

BORDER SOURCE									
KEY BORDER	OUT LINE	FLAT COLOR	HUE ROT	MIX COLOR	RANDOM COLOR	EXT VIDEO			COLOR MIX
ON	OFF								↓
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the KEY BORDER menu

#### Toggling the border on and off – F1 (KEY BORDER)

Press F1 (KEY BORDER).

When the border is on, the following settings for F2 to F10 are enabled.

---

### Applying a key border or outline – F2 (OUTLINE)

Use the following procedure.

**1** To apply a border, set F2 (OUTLINE) to “OFF”, and to apply an outline, set F2 (OUTLINE) to “ON”.

**2** Adjust the following parameters.

Knob	Parameter	Setting
1	Filter	Set degree of applying filter (0.00 to 100.00)
2	Width	Set width of the border or outline (–100.00 to +100.00)
3	Soft	Set the degree of softness of the edge (0.00 to 100.00)
4	Density	Set density of border or outline (0.00 to 100.00)

#### Note

Since there is no depth information in the key border portion of the effect, it is not possible to use three-dimensional combination (the combiner “DEPTH” function). Further, if the width setting is in the range –100 to 0, the combine function will not operate normally in the upstream channel. Always set the width to a value in the range 0 to +100% when using a combiner.

### Selecting the signal for the border or outline – F3 (FLAT COLOR) to F7 (EXT VIDEO) and F10 (COLOR MIX)

Press one of F3 to F7 as required, and adjust the parameters appropriately.

For F6 (RANDOM COLOR), refer to the next item. For all other settings, see the section “BKGD Settings” (page 4-8).

### Setting random colors – F6 (RANDOM COLOR)

Press F6 (RANDOM COLOR), then adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance of random colors (0.00 to 100.00)
2	Chroma	Set color of random colors (0.00 to 100.00)
1	H	Set tile size horizontally (0.00 to 100.00)
2	V	Set tile size vertically (0.00 to 100.00)
3	All	Set tile size horizontally and vertically

### Making varying random colors – F8 (RANDOM)

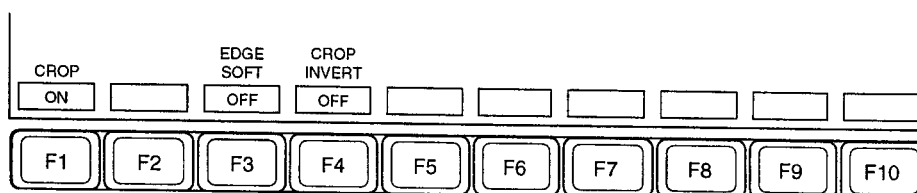
When F6 (RANDOM COLOR) is on, to make varying random colors, press F8 (RANDOM), turning it on.

## Background and Edge Effects

### CROP Settings

The crop effect shrinks the frame so that only a portion of the image is visible. This setting is independent of the setting in the INITIAL CROP menu (see page 9-23); that is, you can override the initial setting.

In the BKGD & EDGE menu, select item 3 (CROP) to display the CROP menu.



Function key indications in the CROP menu

#### Option

F3 (EDGE SOFT) and F4 (CROP INVERT) are only effective when the BKDM-7060 (BKDM-3060 for DME-3000) option is installed.

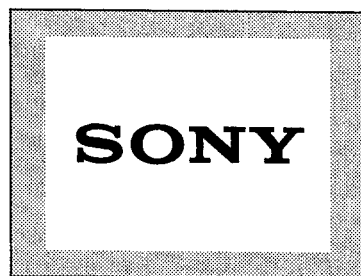
The following are some of the operations carried out in this menu.

#### Applying the cropping effect – F1 (CROP)

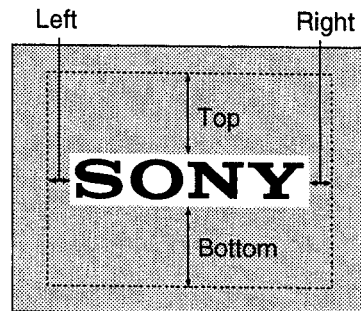
Use the following procedure.

- 1 Set F1 (CROP) to “ON”.
- 2 Adjust the following parameters.

Knob	Parameter	Setting
1	H	Set same cropping amount for left and right sides.
2	V	Set same cropping amount for top and bottom sides.
3	All	Set same cropping amount for all four sides.
1	Top	Set cropping amount for top side. (–4.00 to +4.00)
2	Left	Set cropping amount for left side. (–5.00 to +5.00)
3	Right	Set cropping amount for right side. (–5.00 to +5.00)
4	Bottom	Set cropping amount for bottom side. (–4.00 to +4.00)



CROP OFF



CROP ON

### Softening the cropping edge – F3 (EDGE SOFT)

This function is only enabled when F1 (BORDER) in the BORDER menu (see page 4-14) is “OFF”.

Use the following procedure.

- 1** Set F3 (EDGE SOFT) to “ON”.
- 2** Adjust the following parameter.

Knob	Parameter	Setting
1	Soft	Set the degree of softness of the edge (0.00 to 100.00)

### Inverting the sense of cropping – F4 (CROP INVERT)

Set F4 (CROP INVERT) to “ON”.

This interchanges the image area and the cropped area.

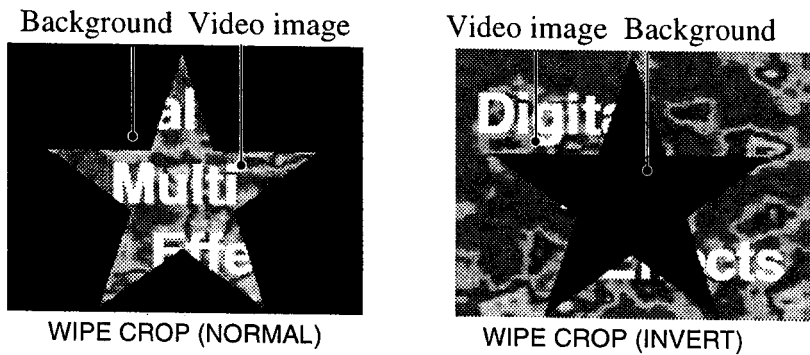
# Background and Edge Effects

## WIPE CROP Settings

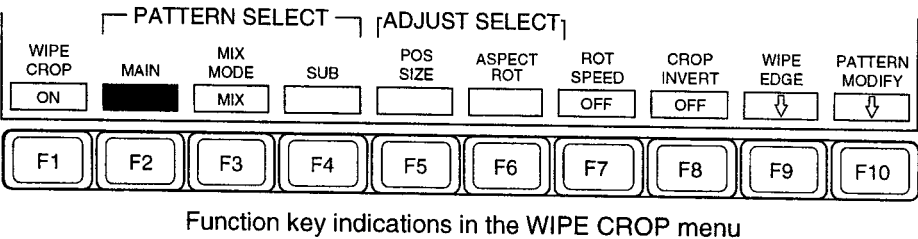
When BKGD is set to “ON” (see page 4-8), this function shows the video only inside the wipe pattern.  
Using the INVERT function, this can be reversed, so that the video is visible only outside the wipe pattern.

Option

This function requires the BKDM-3040 and BKDM-7060 (BKDM-3060 for DME-3000) options.



In the BKGD & EDGE menu, hold down the SHIFT button and select item 3 (WIPE) to display the WIPE CROP menu.



The following are some of the operations carried out in this menu.

**Toggling the wipe crop setting on and off – F1 (WIPE CROP)**  
Press F1 (WIPE CROP).

When the wipe crop setting is on, the following settings for F2 to F10 are enabled.



---

**Note**

The following effects use the same pattern generator as a wipe crop, and it is therefore not possible to have more than one of them on simultaneously. The last selected effect is the one which is effective.

- MASK
- PAGETURN or ROLL (in both cases when BACK COLOR and TRANS BACK COLOR are set to "ON", and MIX COLOR or EXT VIDEO is selected)
- SPOTLIGHTING
- TARGET SPOTLIGHTING

**Selecting the wipe pattern – F2 (MAIN) to F4 (SUB)**

Use the following procedure.

- 1** Press F3 (MIX MODE), to select whether or not to use a combination of patterns.

**OFF:** Use a single ("main") wipe pattern.

**MIX:** Combine two patterns (main and subsidiary) with a mix.

**NAM:** Combine two patterns (main and subsidiary) with a non-additive mix.

- 2** Press F2 (MAIN), then use the knobs to select the wipe pattern number.

Knob	Parameter	Setting
1	Pattern No.	Main pattern number (1, 17, 18, 21, 22, 23, 24, 26, 27, 48 <sup>a</sup> , 49 <sup>a</sup> , and 304)

a) If you select 48 or 49, the following further selections are necessary.

**Note**

The pattern numbers which can be selected for MIX or NAM are: 21, 23, 24, 26, 27, 48, and 49.

**If you selected 48 ("MORE") with knob 1:**

Knob	Parameter	Setting
4	Pattern	Select "MORE" pattern number (1 to 16)

**If you selected 49 ("POLY") with knob 1:**

Knob	Parameter	Setting
3	Polygon	Set number of sides of polygon (3 to 15)
4	Star	Set degree to which vertices stick out (0.00 to 100.00)

(Continued)

## Background and Edge Effects

- 3** If you selected “MIX” or “NAM” in step 1, press F4 (SUB), then use the knobs to select the wipe pattern number.

Knob	Parameter	Setting
1	Pattern No.	Subsidiary pattern number (21, 22, 23, 24, 26, 27, and 304)

- 4** If you selected “MIX” or “NAM” in step 1, adjust the following parameter.

Knob	Parameter	Setting
1	Ratio	Mix amount (0.00 to 100.00)

### Setting the wipe pattern position and size – F5 (POS SIZE)

Press F5 (POS SIZE), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of pattern center position (–8.00 to +8.00)
2	Y	Set y-coordinate of pattern center position (–6.00 to +6.00)
3	Size	Set the pattern size (0.00 to 100.00)

### Setting the wipe pattern aspect ratio, rotation, and other parameters – F6 (ASPECT ROT)

Press F6 (ASPECT ROT), then adjust the following parameters.

To Rotate the wipe pattern, set F7 (ROT SPEED) to “ON”, then adjust the following parameter.

Knob	Parameter	Setting
3	Aspect	Set aspect ratio of pattern (–100.00 to +100.00)
4	Angle (when F7 is “OFF”)	Set direction and amount of pattern rotation (–8.00 to +8.00)
	Speed (when F7 is “ON”)	Set rate of rotation of pattern per frame (–12.00 to +12.00)

---

### Inverting the crop sense – F8 (CROP INVERT)

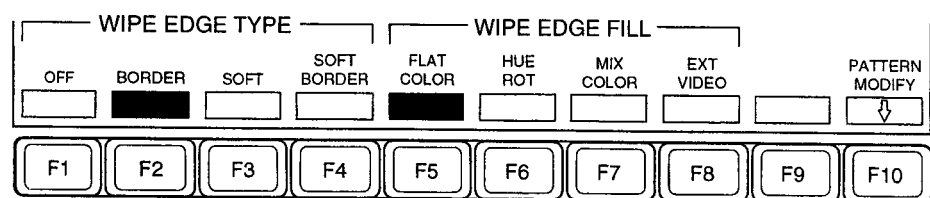
Set F8 (CROP INVERT) to “ON”.

The video and key signals now appear only outside the wipe pattern.

### Modifying the wipe edge – F9 (WIPE EDGE)

Use the following procedure to apply a border and other effects to the edge of the selected wipe pattern.

- 1 In the WIPE CROP menu, press F9 (WIPE EDGE).  
The WIPE CROP EDGE menu appears.



Function key indications in the WIPE CROP EDGE menu

#### Option

- F7 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

(Continued)

## Background and Edge Effects

### 2 Carry out the following settings as required.

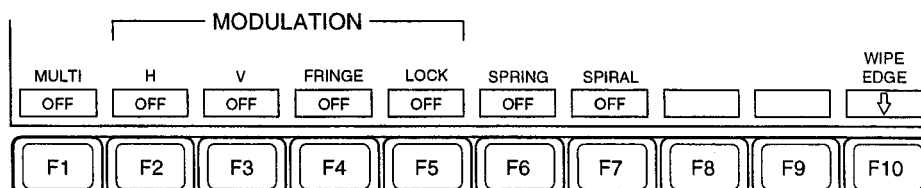
Function key indication	Function	Parameters and settings
F1 (OFF)	Switch the border off.	—
F2 (BORDER)	Apply a border to the wipe pattern.	Knob 4 ("Width"): border width (0.00 to 100.00)
F3 (SOFT)	Soften the edge of the pattern.	Knob 1 ("Soft"): degree of softness of the edge (0.00 to 100.00)
F4 (SOFT BORDER)	Apply a soft border.	Knob 1 ("Inner Soft"): degree of softness of the inner edge (0.00 to 100.00) Knob 2 ("Outer Soft"): degree of softness of the outer edge (0.00 to 100.00) Knob 3 ("All"): degree of softening of inner and outer edges Knob 4 ("Width"): border width (0.00 to 100.00)
F5 (FLAT COLOR)	Select any uniform color for the border.	See "BKGD Settings" (page 4-8).
F6 (HUE ROT)	Use a varying border color.	
F7 (MIX COLOR)	Use a composite border color formed using the COLOR MIX function.	
F8 (EXT VIDEO)	Insert an external signal into the border.	
F10 (PATTERN MODIFY)	Displays the WIPE CROP PATTERN MODIFY menu (see next page).	—

## Modifying the wipe pattern – F10 (PATTERN MODIFY)

Use the following procedure.

- 1 In the WIPE CROP menu, press F10 (PATTERN MODIFY).

The WIPE CROP PATTERN MODIFY menu appears.



Function key indications in the WIPE CROP PATTERN MODIFY menu

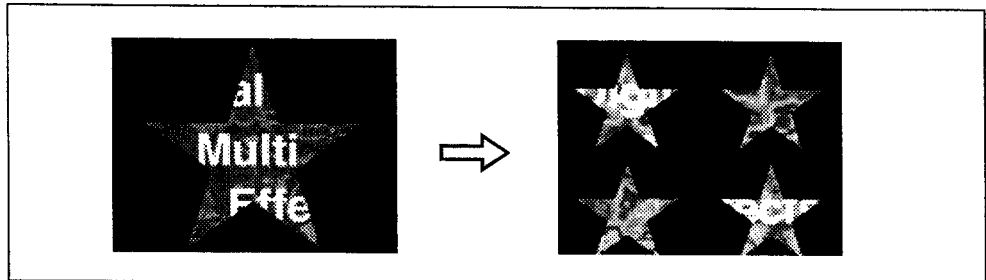
- 2 Carry out the following settings as required.

Function key indication	Function	Parameters and settings
F1 (MULTI)	Replicate the pattern.	Knob 1 ("H Multi"): number of replicated patterns horizontally (1 to 15) Knob 2 ("V Multi"): number of replicated patterns vertically (1 to 15) Knob 3 ("Shift"): replication layout (1 to 4) (See next page.)
F2 (H)	Apply a horizontal modulation.	Knob 1 ("Amplitude"): amplitude of the waves (0.00 to 100.00) Knob 2 ("Frequency"): degree of fineness of the waves (0.00 to 100.00) Knob 3 ("Speed"): direction and speed of the waves (-100.00 to +100.00)
F3 (V)	Apply a vertical modulation.	
F4 (FRINGE)	Apply a modulation in the circumferential direction.	
F5 (LOCK)	Simultaneously lock the above adjustments (F2 to F4) in phase.	—
F6 (SPRING)	Apply a modification like a spring welling out.	Knob 1 ("Spring"): direction and strength of the modulation (-100.00 to +100.00)
F7 (SPIRAL)	Apply a modification like a whirlpool.	Knob 1 ("Spiral"): winding direction and strength (-100.00 to +100.00)
F10 (WIPE EDGE)	Display the WIPE CROP EDGE menu (see page 4-23).	—

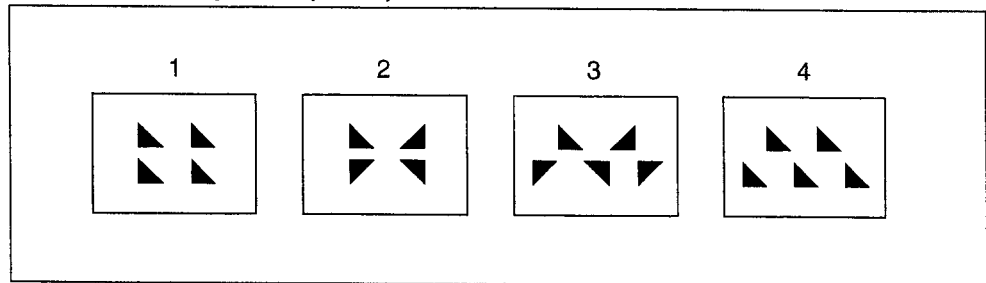
## Background and Edge Effects

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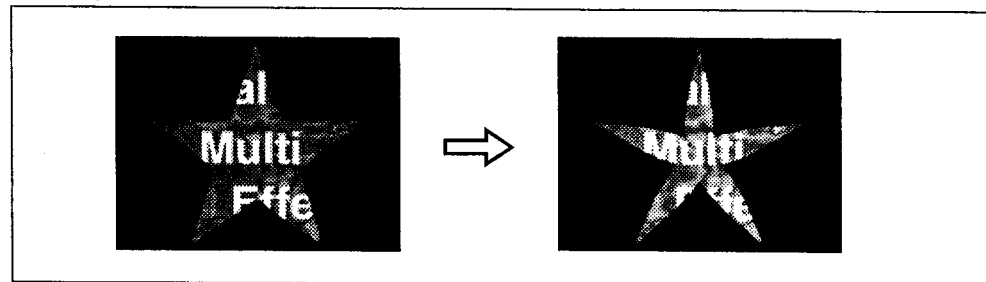
### Example of MULTI PATTERN



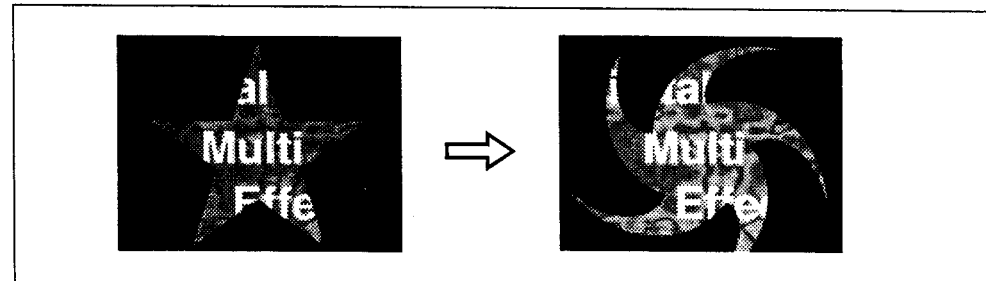
### Replication layouts (Shift) for MULTI PATTERN



### Example of SPRING



### Example of SPIRAL

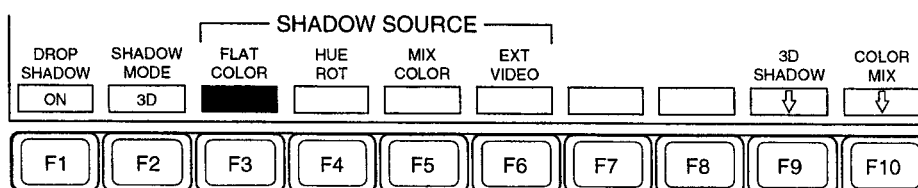


## DROP SHADOW Settings

### Option

Drop shadow functions for luminance key effects, external key effects, and “overlap nonlinear effects” (page turn, roll, cylinder and sphere) require the BKDM-7060 (BKDM-3060 for DME-3000) option.

In the BKGD & EDGE menu, select item 4 (DROP SHADOW) to display the DROP SHADOW menu.



Function key indications in the DROP SHADOW menu

### Option

- F5 (MIX COLOR) and F10 (COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F6 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

The following are some of the operations carried out in this menu.

### Applying a drop shadow – F1 (DROP SHADOW)

Use the following procedure.

- 1 Press F1 (DROP SHADOW), turning it on.
- 2 If F2 (SHADOW MODE) is set to “AUTO” or “TARGET”, adjust the following parameters. If it is set to “3D”, the knobs are not used.

Knob	Parameter	Setting
1	DX <sup>a)</sup>	Set x-coordinate of drop shadow position (–4.00 to +4.00)
2	DY <sup>a)</sup>	Set y-coordinate of drop shadow position When F2 (SHADOW MODE) is AUTO: (–3.00 to +3.00) When F2 (SHADOW MODE) is TARGET: (–3.00 to 0.00)
4	Density	Set shadow density (0.00 to 100.00)

a) See the figure of page 4-29.

## Background and Edge Effects

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### Option

#### Selecting the drop shadow mode – F2 (SHADOW MODE)

- If the BKDM-7060 (BKDM-3060 for DME-3000) option is not installed, F2 is automatically set to “AUTO”, and cannot be changed.
- If the BKDM-7070 option is not installed, the shadow mode “3D” does not appear on the screen. It is also not possible to select “3D” on a DME-3000.

Press F2 (SHADOW MODE). Pressing F2 cycles through the settings “AUTO”, “TARGET”, and “3D”.

**AUTO:** The drop shadow x- and y-axes for an “overlap nonlinear effect” or the brick effect are defined in the target space. For other effects they are defined in the source space.

#### Notes

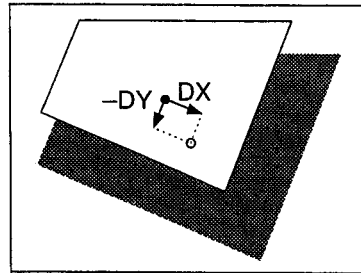
- For a nonlinear effect other than an “overlap nonlinear effect” applying the drop shadow function may result in shadows with unnatural shapes.
- When images are combined with the combiner function (*see page 4-62*), if an overlap nonlinear effect is used in the upstream image, it is not possible to apply a drop shadow to that image.

**TARGET:** The drop shadow x- and y-axes are defined in the target space.

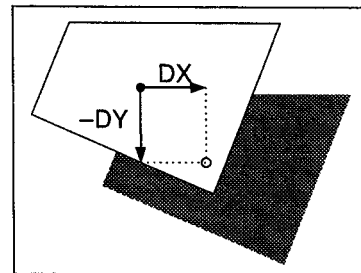
#### Notes

- If a part of the image projects outside the screen area, the drop shadow corresponding to that part is omitted.
- When images are combined with the combiner function, it is not possible to apply a drop shadow to the upstream image.



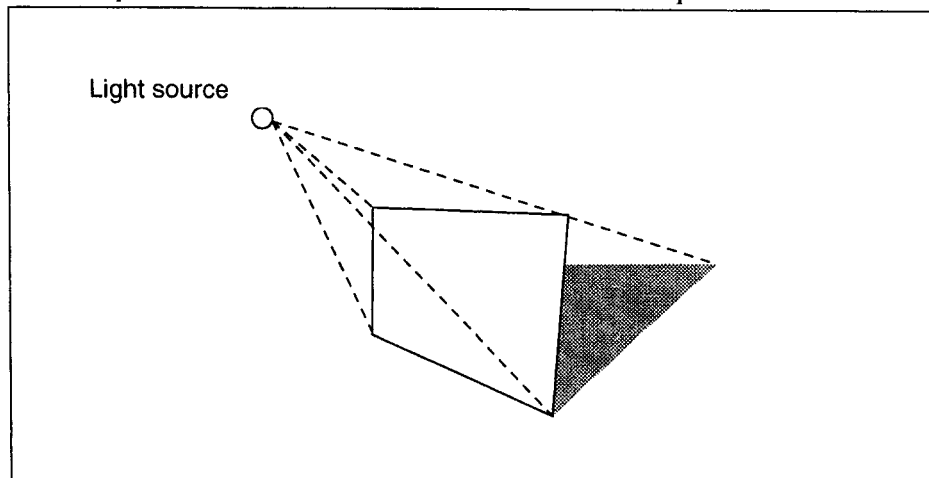


For an effect other than an overlap nonlinear effect or brick effect, when the shadow mode is set to "AUTO"



When the shadow mode is set to "TARGET", or for an overlap nonlinear effect or brick effect when the shadow mode is set to "AUTO"

**3D:** The drop shadow is defined in a three-dimensional space.



#### Notes

- 3D shadow cannot be used simultaneously with the key border, glow, brick, or nonlinear effects. Selecting these effects produces the same effect as if TARGET were selected.
- A 3D shadow cannot be used with the combine function.

## Background and Edge Effects

### Selecting the signal for the drop shadow – F3 (FLAT COLOR) to F6 (EXT VIDEO), F10 (COLOR MIX)

Press one of F3 (FLAT COLOR) to F6 (EXT VIDEO) and adjust the parameters as required.

*The significance of the parameters and their setting ranges are the same as for a background. For details, see the section “BKGD Settings” (page 4-8).*

### Manipulating the drop shadow in three dimensions – F9 (3D SHADOW)

#### Note

It is not possible to use 3D shadows on a DME-3000.

Press F2 (SHADOW MODE) to select “3D”, entering advanced shadow mode.

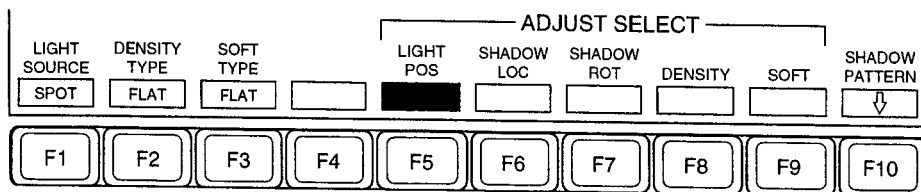
*For details of the operations in this mode, see the immediately following section “Advanced shadow mode settings”.*

## Advanced shadow mode settings

These settings are used to manipulate the drop shadow in three dimensions.

In the DROP SHADOW menu, press F2 (SHADOW MODE) to select “3D”, then press F9 (3D SHADOW).

The 3D SHADOW menu appears.



Function key indications in the 3D SHADOW menu

The following are some of the operations carried out in this menu.

---

### **Moving a drop shadow in a three-dimensional space – F5 (LIGHT POS), F6 (SHADOW LOC), F7 (SHADOW ROT)**

Set any of F5 to F7 to “ON”, then use the knobs to adjust the position of the light source and the projection of the shadow. Movement operations in three dimensions are easier if you press the MENU button in the DME control panel, turning it on, and use the trackball and Z-ring.

**F5 (LIGHT POS):** Set the position of the light source in the target space. (See the immediately following item, “Setting the light source position”.

**F6 (SHADOW LOC):** Set the position of the plane of projection of the drop shadow.

**F7 (SHADOW ROT):** Set the amount of rotation of the plane of projection of the drop shadow.

### **Setting the light source position**

Depending on the light source selected with F1 (LIGHT SOURCE), the adjustments vary as follows:

**Using a point light source:** Use knobs 1 and 2 to set the x- and y-coordinates, and knob 3 to set the z-coordinate.

**Using a parallel light source:** Use knobs 1 and 2 to set the x- and y-coordinates (latitude and longitude, respectively).

### **Selecting the light source – F1 (LIGHT SOURCE)**

Press F1 (LIGHT SOURCE).

Pressing F1 toggles between a point light source and a parallel light source.

#### **Note**

When the point light source is selected, if the light source and the viewpoint coincide, the drop shadow is no longer visible.

The position of the viewpoint can be determined from the 3D transform PERSPECT (perspective) parameters.

Viewpoint x- and y-coordinates = perspective parameters X and Y

Viewpoint z-coordinate:  $-1/z$  = perspective parameter Z

Thus if the perspective parameter Z = 0.06 (default value), the viewpoint z-coordinate is -16.7.

## Background and Edge Effects

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### Selecting the density of the 3D drop shadow – F2 (DENSITY TYPE), F8 (DENSITY)

Use the following procedure.

- 1 Press F2 (DENSITY TYPE) to select either of the following.  
**FLAT:** The drop shadow has a uniform density.  
**DEPTH:** The drop shadow becomes fainter further from the light source.

- 2 Press F8 (DENSITY) then adjust the following parameters.  
**When you selected “FLAT” in step 1:**

Knob	Parameter	Setting
1	Density	Set shadow density (0.00 to 100.00)

**When you selected “DEPTH” in step 1:**

Knob	Parameter	Setting
1	Offset	Set reference point for the DEPTH control (–100.00 to +100.00)
2	Gain	Set rate of change of shadow density (0.00 to 100.00)

### Softening the 3D drop shadow edge – F3 (SOFT TYPE), F9 (SOFT)

Use the following procedure.

- 1 Press F3 (SOFT TYPE) to select either of the following.  
**FLAT:** Edges have a uniform softness.  
**DEPTH:** The edge softness increases further from the light source.

- 2 Press F9 (SOFT) then adjust the following parameters.  
**When you selected “FLAT” in step 1:**

Knob	Parameter	Setting
1	Soft	Set the degree of softness of the edge (0.00 to 100.00)

**When you selected “DEPTH” in step 1:**

Knob	Parameter	Setting
1	Offset	Set reference point for the DEPTH control (–100.00 to +100.00)
2	Gain	Set rate of change of softness (0.00 to 100.00)

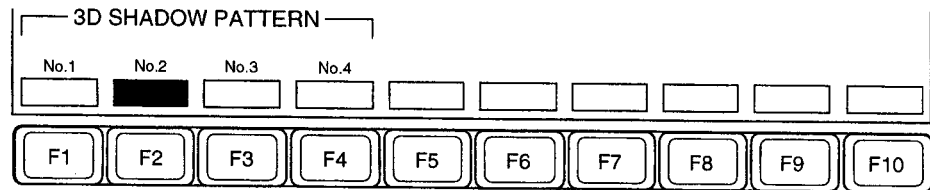
---

## Moving the shadow projection plane to a corner of the video space – F10 (SHADOW PATTERN)

Use the following procedure.

- 1 Press F10 (SHADOW PATTERN).

The SHADOW PATTERN menu appears.



Function key indications in the SHADOW PATTERN menu

- 2 Press one of F1 to F4 to move the center of the shadow projection plane to one corner of the video space.

- F1 (No. 1): Lower left corner
- F2 (No. 2): Lower right corner
- F3 (No. 3): Upper left corner
- F4 (No. 4): Upper right corner

## Background and Edge Effects

### BEVELED EDGE Settings

This gives an image a beveled edge.

#### Option

This function requires the BKDM-7041 option.

In the BKGD & EDGE menu, select item 5 (BEVELED EDGE) to display the BEVELED EDGE menu.

BEVELD EDGE	PATTERN	EDGE MODE		SOFT					EDGE SOURCE
ON	21	LIGHT		OFF					↓
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the BEVELED EDGE menu

The following are some of the operations carried out in this menu.

#### Applying a beveled edge effect - F1 (BEVELED EDGE) to F3 (EDGE MODE)

Use the following procedure.

- 1 Set F1 (BEVELED EDGE) to "ON".
- 2 Press F2 (PATTERN), to select the edge position by a pattern number.

Pressing this button cycles through the possibilities: 21 (four corners), 5 (lower right), 6 (lower left), 7 (upper left), 8 (upper right).

*For the patterns corresponding to pattern numbers, see the appendix "Wipe/Mix Patterns" (page A-2).*

- 3 Press F3 (EDGE MODE) to select "MATTE" or "LIGHT".  
**LIGHT:** An edge with the impression of impinging light.  
**MATTE:** A colored edge.

*For more details, see the section "Selecting the border color or edge intensity" (on next page).*

## 4 Adjust the following parameters.

Knob	Parameter	Setting
1	H	Width of left and right edges (0.00 to 100.00)
2	V	Width of top and bottom edges (0.00 to 100.00)
3	All	Width of all edges

The edge width in all cases is measured from the crop position.

## Making the boundaries of the edges soft - F5 (SOFT)

Use the following procedure.

- 1 Set F5 (SOFT) to "ON".
- 2 Adjust the following parameters.

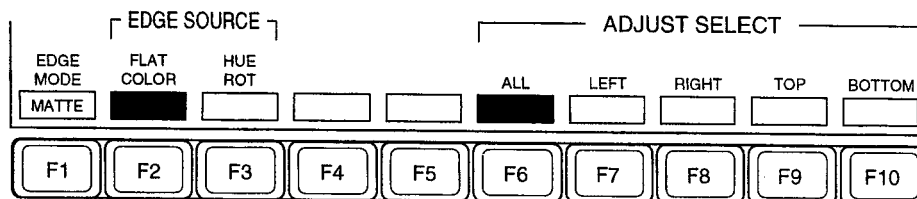
Knob	Parameter	Setting
1	Inner	Set degree of softness of the inside of the edges (0.00 to 100.00)
2	Bound	Set degree of softness of the boundary between two edges (0.00 to 100.00)

## Selecting the border color or edge intensity - F10 (EDGE SOURCE)

Use the following procedure.

- 1 Press F10 (EDGE SOURCE).

The EDGE SOURCE menu appears.



Function key indications in the EDGE SOURCE menu

- 2 Press F1 (EDGE MODE) to select "MATTE" or "LIGHT".  
**LIGHT:** Set the edge intensity.  
**MATTE:** Set the edge color.

If you select "LIGHT," skip to step 5.

(Continued)

## Background and Edge Effects

- 3** When you selected “MATTE”, for a single hue color set F2 (FLAT COLOR) to “ON,” or for a progressively changing hue color set F3 (HUE ROT) to “ON”.
- 4** When you selected “MATTE”, to make all four edges the same color, press F6 (ALL). To set the color of different edges individually, press one of F7 (LEFT) to F10 (BOTTOM), to select the edge to be adjusted.
- 5** Adjust the following parameters.

### When you selected “MATTE”:

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue (when “FLAT COLOR” selected )	Set hue (0.00 to 359.99)
	Speed (when “HUE ROT” selected)	Set rate of change of hue per frame (–12.00 to +12.00)
4	Gain <sup>a)</sup>	Set rate of mixing color with respect to input image (0.00 to 100.00)

a) Only appears when F6 (ALL) is selected.

### When you selected “LIGHT”:

Knob	Parameter	Setting
1	All	Set intensity of all sides. (–100.00 to +100.00)
1	Top	Set intensity of top side. (–100.00 to +100.00)
2	Left	Set intensity of left side. (–100.00 to +100.00)
3	Right	Set intensity of right side. (–100.00 to +100.00)
4	Bottom	Set intensity of bottom side. (–100.00 to +100.00)



# Freeze and Afterimage Effects

This section describes how to operate the image freeze effects and various effects with recursive use of memory.

## Effect Selection

### Top menu selection

The freeze and afterimage effects are selected from the FREEZE & RECURSIVE menu.

Press the required item selection button as shown in the following table to select the effect.

Item selection button	Function	See page
1 (INPUT FREEZE)	Freeze input video.	See below.
F2 (RECUR)	Apply various effects with recursive use of memory	4-40

## INPUT FREEZE Settings

In the FREEZE & RECURSIVE menu, select item 1 (INPUT FREEZE) to display the INPUT FREEZE menu.

INPUT FREEZE

HARD  
FREEZE

ON

LAST  
FREEZE

OFF

TIME  
STROBE

OFF

KF  
STROBE

OFF

FILM

OFF

VIDEO  
TIMING

FRAME

KEY  
TIMING

FRAME

DELEGA-  
TION

V&K

F1

F2

F3

F4

F5

F6

F7

F8

F9

F10

Function key indications in the INPUT FREEZE menu

The following are some of the operations carried out in this menu.  
Note that only one of F1 to F5 can be set to ON at any one time.

### Freezing the input frame – F1 (HARD FREEZE)

Set F1 (HARD FREEZE) to “ON”.

This freezes the input video.

## Freeze and Afterimage Effects

---

### Recalling the last freeze frame – F2 (LAST FREEZE)

Set F2 (LAST FREEZE) to “ON”.

This recalls the last frame frozen on the output monitor.

### Selecting a stroboscope effect – F3 (TIME STROBE)

By freezing the input video at regular intervals of a number of frames, you can create a stroboscopic effect.

Use the following procedure.

- 1** Set F3 (TIME STROBE) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	Dur	Set the interval (in frames) between freeze frames (0.00 to 255.00)
2	Live	Set the percentage of the interval between two successive freeze frames for which the video is run (0.00 to 100.00)

### Strobing on each key frame – F4 (KF STROBE)

Set F4 (KF STROBE) to “ON”.

This freezes the input video on each key frame of the effect.

### Obtaining an impression of film frame flicker – F5 (FILM)

Use the following procedure.

- 1** Set F5 (FILM) to “ON”.
- 2** Adjust the following parameter.

Knob	Parameter	Setting
1	Film	Set degree of film frame flicker (0.00 to 100.00)

---

### **Selecting the video freeze timing – F6 (VIDEO TIMING)**

Press F6 (VIDEO TIMING), to select one of the following:

**FRAME:** freeze a frame.

**FIELD1:** freeze the first field of a frame.

**FIELD2:** freeze the second field of a frame.

### **Selecting the key frame freeze timing – F7 (KEY TIMING)**

Press F7 (KEY TIMING) to cycle through the possibilities. The selections (FRAME, FIELD1, FIELD2) are the same as for the video freeze timing above.

### **Selecting whether video or key images are frozen – F8 (DELEGATION)**

The freeze function can apply to the video image, or to the key image, or to both.

Press F8 (DELEGATION) to select one of the following:

**V & K:** Control both video and key images simultaneously.

**VIDEO:** Control video images only. The key image continues unchanged.

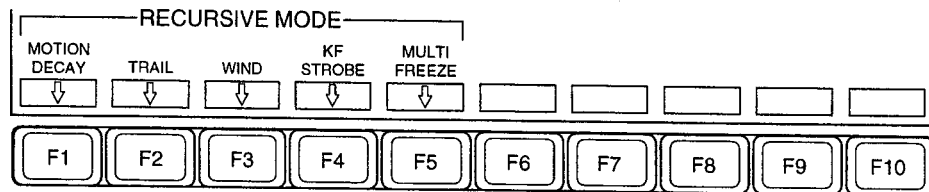
**KEY:** Control key images only. The video image continues unchanged.

## Freeze and Afterimage Effects

### RECURSIVE Effect Selection

This section describes how to select the recursive memory effects, and display the menu.

In the FREEZE & RECURSIVE menu, select item 2 (RECUR) to display the RECURSIVE menu.



Function key indications in the RECURSIVE menu

#### Option

F1 (MOTION DECAY) to F5 (MULTI FREEZE) are only effective when the BKDM-7060 (BKDM-3060 FOR DME-3000) option is installed.

In this menu, press the required function key as shown in the following table to select the corresponding menu.

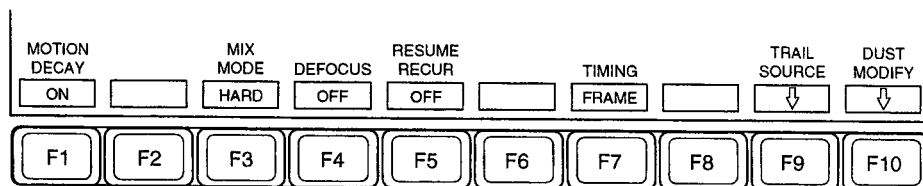
Function key	Function	See page
F1 (MOTION DECAY)	Blur the motion of a moving video by creating afterimages.	4-41
F2 (TRAIL)	Freeze the input video at regular intervals, leaving an afterimage trail.	4-46
F3 (WIND)	Freeze the input video at regular intervals, and move the frozen image in a particular direction.	4-48
F4 (KF STROBE)	Freeze the video each time the effect passes a key frame, leaving a trail.	4-50
F5 (MULTI FREEZE)	Freeze the video each time the effect passes a key frame, dividing up the image into a matrix.	4-52

---

## MOTION DECAY Settings

This effect blurs the motion of a moving video by creating afterimages.

In the RECURSIVE menu, press F1 (MOTION DECAY) to display the MOTION DECAY menu.



Function key indications in the MOTION DECAY menu

The following are some of the operations carried out in this menu.

### Blurring motion – F1 (MOTION DECAY), F3 (MIX MODE)

Use the following procedure.

- 1** Set F1 (MOTION DECAY) to “ON”.
- 2** Press F3 (MIX MODE) to select “HARD” or “SOFT”.  
If you select “HARD” the brighter of the video and afterimage remains, whereas if you select “SOFT” the video and afterimage are mixed.
- 3** Adjust the following parameters.

Knob	Parameter	Setting
1	Video	Set degree of blurring of video signal (0.00 to 100.00)
2	Key	Set degree of blurring of key signal (0.00 to 100.00)
3	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)

## Freeze and Afterimage Effects

---

### Defocusing the afterimage part – F4 (DEFOCUS)

Use the following procedure.

- 1** Set F4 (DEFOCUS) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	Video	Set degree of defocusing of video signal (0.00 to 100.00)
2	Key	Set degree of defocusing of key signal (0.00 to 100.00)

### Deleting the afterimage remaining in memory at each key frame – F5 (RESUME RECUR)

Set F5 (RESUME RECUR) to “ON”.

Each time the effect passes a key frame, the recursive memory is cleared, before writing the new afterimage.

### Selecting the stroboscope timing – F7 (TIMING)

Press F7 (TIMING), to select either of the following:

**FRAME:** Create afterimages at frame intervals.

**FIELD:** Create afterimages at field intervals.

### Using a separate color or video for a part of the trail – F9 (TRAIL SOURCE)

Press F9 (TRAIL SOURCE) to display the TRAIL SOURCE menu.

*For details, see the next section “TRAIL SOURCE Settings”.*

### Leaving afterimage stardust trails – F10 (DUST MODIFY)

Press F10 (DUST MODIFY) to display the DUST MODIFY menu.

*For details, see the section “DUST MODIFY Settings” (page 4-45).*

---

## TRAIL SOURCE Settings

The afterimage part of a recursive effect can be replaced by different video.

In the MOTION DECAY menu, press F9 (TRAIL SOURCE) to display the TRAIL SOURCE menu.

TRAIL SOURCE									
TRAIL COLOR	TRAIL TYPE	FLAT COLOR	HUE ROT	MIX COLOR	EXT VIDEO	RANDOM COLOR	HUE RANGE	HUE PATH	DUST MODIFY
ON	LIVE								↓
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the TRAIL SOURCE menu

### Option

- F5 (MIX COLOR) is only effective when the BKDM-3040 option is installed.
- F6 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

### Using separate video for the afterimage part – F1 (TRAIL COLOR)

Set F1 (TRAIL COLOR) to “ON”.

This inserts a separate video into the afterimage part of recursive effects.

### Selecting the separate video used for the afterimage part – F2 (TRAIL TYPE) to F9 (HUE PATH)

Use the following procedure.

- 1 Press F2 (TRAIL TYPE), and select whether to use live video for the afterimage part, or a freeze frame of the same size as the input video.

**LIVE:** Live video.

**FREEZE:** Write a freeze frame of the same size as the input video to recursive memory.

(Continued)

## Freeze and Afterimage Effects

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- 2** Press one of F3 to F7 to select the video or color matte to be used for the afterimage part, and adjust the parameters as required.

*For F3 to F6, the significance of the parameters and their setting values are the same as for a background. For details, see page 4-8. And for F7, see page 4-17.*

**Note**

The random color function is not available on the DME-3000.

- 3** If you selected F4 (HUE ROT) in step **2**, set F8 (HUE RANGE) to “ON”, then adjust the following parameters.

Knob	Parameter	Setting
1	Center	Set center position of range (0.00 to 359.99)
2	Range	Set angular range (0.00 to 180.00)
3	Step	Set degree of change (0.00 to 100.00)

- 4** If you selected F4 (HUE ROT) in step **2**, press F9 (HUE PATH) to select the behavior when the varying hue reaches the end of its range.

**MODULE:** Return to the other end of the range, and recycle.

**SWING:** Reverse direction, thus carrying out a reciprocating variation.



---

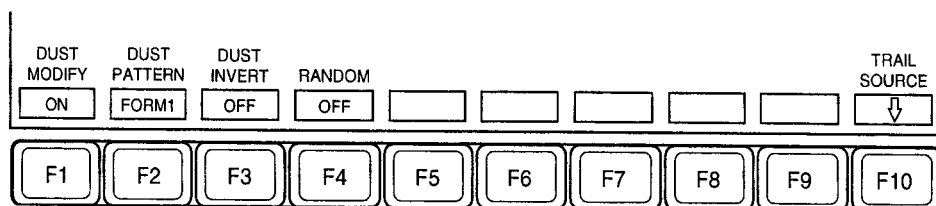
## DUST MODIFY Settings

The afterimage of a recursive effect leaves a stardust trail.

### Note

The dust modify function is not available on the DME-3000.

In the MOTION DECAY menu, press F10 (DUST MODIFY) to display the DUST MODIFY menu.



Function key indications in the DUST MODIFY menu

The following are some of the operations carried out in this menu.

### Leaving afterimage stardust trails – F1 (DUST MODIFY), F2 (DUST PATTERN)

Use the following procedure.

- 1** Set F1 (DUST MODIFY) to “ON”.
- 2** Press F2 (DUST PATTERN) to select one of the stardust patterns (FORM 1 or FORM 2).
- 3** Adjust the following parameters.

Knob	Parameter	Setting
1	Volume	Set degree of stardust trails (0.00 to 100.00)
2	Level	Set video level of stardust trail portion (0.00 to 100.00)
3	Soft	Set the degree of softness of the stardust edges (0.00 to 100.00)
1	H Size	Set width of stardust (0.00 to 100.00)
2	V Size	Set height of stardust (0.00 to 100.00)
3	All	Set size of stardust

# Freeze and Afterimage Effects

## Selecting the generation pattern of stardust trails – F3 (DUST INVERT)

Press F3 (DUST INVERT) to toggle between “ON” and “OFF” settings.

**ON:** Erase the afterimage with the randomly generated stardust trail pattern.

**OFF:** Leave the afterimage according to the randomly generated stardust trail pattern.

## Randomly erasing the afterimage – F4 (RANDOM)

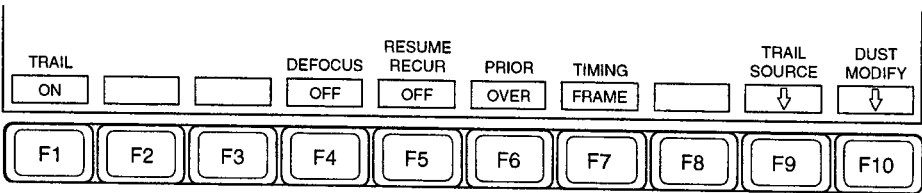
Set F4 (RANDOM) to “ON”.

This randomly erases the afterimage as time passes.

# TRAIL Settings

This effect strobes the input video at regular intervals, leaving an afterimage trail.

In the RECURSIVE menu, press F2 (TRAIL) to display the TRAIL menu.



Function key indications in the TRAIL menu

The following are some of the operations carried out in this menu.

## Making an afterimage trail – F1 (TRAIL)

Use the following procedure.

- 1 Set F1 (TRAIL) to “ON”.

---

## 2 Adjust the following parameters.

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
2	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)
3	Dur	Set interval between freeze frames (0.00 to 255.00)
4	Live	Set percentage of the interval between two successive freeze frames for which the video is run (0.00 to 100.00)

### Defocusing the afterimage part – F4 (DEFOCUS)

Use the following procedure.

#### 1 Set F4 (DEFOCUS) to “ON”.

#### 2 Adjust the following parameters.

Knob	Parameter	Setting
1	Video	Set degree of defocusing of video signal (0.00 to 100.00)
2	Key	Set degree of defocusing of key signal (0.00 to 100.00)

### Deleting the afterimage remaining in memory at each key frame – F5 (RESUME RECUR)

Set F5 (RESUME RECUR) to “ON”.

Each time the effect passes a key frame, the recursive memory is cleared, before writing the new afterimage.

### Changing the way in which freeze frames (afterimages) and moving video are superimposed – F6 (PRIOR)

Use the following procedure.

#### 1 Press F6 (PRIOR).

This cycles through the settings “OVER”, “UNDER”, and “MIX”, indications, changing the method of superimposition.

**OVER:** The moving video is on top.

**UNDER:** The moving video is underneath.

**MIX:** The moving video and freeze frame are mixed.

*(Continued)*

## Freeze and Afterimage Effects

- 2** If you selected “MIX” in step 1, adjust the following parameter.

Knob	Parameter	Setting
1	Mix	Set the mix ratio of the freeze frames to moving video (0.00 to 100.00)

### Selecting the stroboscope timing – F7 (TIMING)

Press F7 (TIMING), to select either of the following.

**FRAME:** Freeze at frame intervals.

**FIELD:** Freeze at field intervals.

### Using a separate color or video for a part of the trail – F9 (TRAIL SOURCE)

Press F9 (TRAIL SOURCE) to display the TRAIL SOURCE menu.

*For details, see the section “TRAIL SOURCE Settings” (page 4-43).*

### Leaving afterimage stardust trails – F10 (DUST MODIFY)

Press F10 (DUST MODIFY) to display the DUST MODIFY menu.

*For details, see the section “DUST MODIFY Settings” (page 4-45).*

## WIND Settings

This freezes the input video at regular intervals, and moves the frozen image in a particular direction.

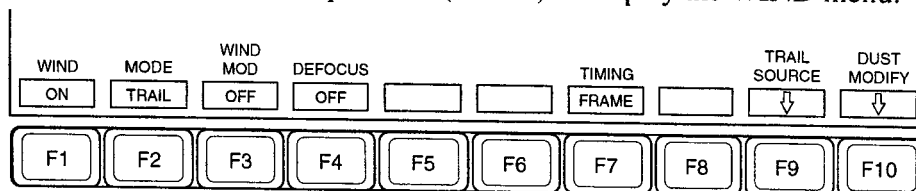
#### Option

This function requires the BKDM-7060 option.

#### Note

The wind effect is not available on the DME-3000.

In the RECURSIVE menu, press F3 (WIND) to display the WIND menu.



Function key indications in the WIND menu

---

The following are some of the operations carried out in this menu.

### Applying the WIND effect – F1 (WIND)

#### Note

Since there is no depth information in the wind effect portion, it is not possible to use three-dimensional combination (the combiner “DEPTH” function).

Use the following procedure.

- 1** Set F1 (WIND) to “ON”.
- 2** Press F2 (WIND MODE) to select either of the following:

**MOTION:** The effect applies to portions of the image with movement.

**TRAIL:** The effect applies only to portions with three-dimensional movement.

- 3** Adjust the following parameters.

When F2 (MODE) is set to “TRAIL”:

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
3	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)
1	H Shift	Set amount of movement horizontally (–100.00 to +100.00)
2	V Shift	Set amount of movement vertically (–100.00 to +100.00)

When F2 (MODE) is set to “MOTION”:

Knob	Parameter	Setting
1	Video	Set degree of blurring of video signal (0.00 to 100.00)
2	Key	Set degree of blurring of key signal (0.00 to 100.00)
3	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)
1	H Shift	Set amount of movement horizontally (–100.00 to +100.00)
2	V Shift	Set amount of movement vertically (–100.00 to +100.00)

## Freeze and Afterimage Effects

### Applying modulation to “WIND” – F3 (WIND MOD)

Use the following procedure.

- 1 Set F3 (WIND MOD) to “ON”.
- 2 Adjust the following parameters.

Knob	Parameter	Setting
1	H Amp	Set amplitude of horizontal modulation (0.00 to 100.00)
2	H Freq	Set frequency of horizontal modulation (0.00 to 100.00)
3	V Amp	Set amplitude of vertical modulation (0.00 to 100.00)
4	V Freq	Set frequency of vertical modulation (0.00 to 100.00)

The following operations are also possible in the same way as for a trail:

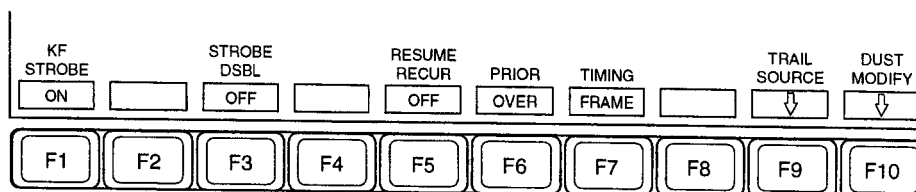
- Defocusing the afterimage part – F4 (DEFOCUS)
- Selecting the stroboscope timing – F7 (TIMING)
- Applying a color to or selecting a video source for the trail - F9 (TRAIL SOURCE)
- Leaving afterimage stardust trails – F10 (DUST MODIFY)

For details, see page 4-46.

## KF (Key Frame) STROBE Settings

This freezes the video each time the effect passes a key frame.

In the RECURSIVE menu, press F4 (KF STROBE) to display the KEY FRAME STROBE menu.



Function key indications in the KEY FRAME STROBE menu

The following are some of the operations carried out in this menu.

---

### Leaving an afterimage trail – F1 (KF STROBE)

Use the following procedure.

- 1** Set F1 (KF STROBE) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
2	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)

### Not leaving afterimages – F3 (STROBE DSBL)

Set F3 (STROBE DSBL) to “ON”.

In this case no afterimages are left even when the effect passes a key frame.

The following operations are also possible in the same way as for a trail:

- Deleting the afterimage remaining in memory at each key frame – F5 (RESUME RECUR)
- Changing the way in which freeze frames (afterimages) and moving video are superimposed – F6 (PRIOR)
- Selecting the stroboscope timing – F7 (TIMING)
- Applying a color to or selecting a video source for the trail - F9 (TRAIL SOURCE)
- Leaving afterimage stardust trails – F10 (DUST MODIFY)

*For details, see page 4-46.*

## Freeze and Afterimage Effects

### MULTI FREEZE Settings

This effect freezes the video each time the effect passes a key frame, dividing up the image into a matrix.

In the RECURSIVE menu, press F5 (MULTI FREEZE) to display the MULTI FREEZE menu.

MULTI FREEZE		NUMBER		RESUME RECUR	PRIOR	TIMING		TRAIL SOURCE	DUST MODIFY
ON		16		OFF	OVER	FRAME		↓	↓
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the MULTI FREEZE menu

The following are some of the operations carried out in this menu.

#### Applying the “multi-freeze” effect – F1 (MULTI FREEZE)

- 1 Press F1 (MULTI FREEZE).
- 2 Adjust the following parameters.

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
2	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)



---

### **Selecting the position on the grid to be frozen**

To select the position of the frozen image within the videospace, set the transformation mode as follows, and move the input image to the required position.

- In the source coordinate frame: LOC XYZ or LOC SIZE
- In the target coordinate frame: LOC XYZ

#### **Note**

No movement other than translation is possible, that is, no rotation or zooming.

The global channel parameters are not reflected.

### **Selecting the number of freeze insert pictures – F3 (NUMBER)**

Press F3 (NUMBER) to select 4, 9, 16 or 25 pictures.

The following operations are also possible in the same way as for a trail:

- Deleting the afterimage remaining in memory at each key frame – F5 (RESUME RECUR)
- Changing the way in which freeze frames (afterimages) and moving video are superimposed – F6 (PRIOR)
- Selecting the stroboscope timing – F7 (TIMING)
- Applying a color to or selecting a video source for the trail - F9 (TRAIL SOURCE)
- Leaving afterimage stardust trails – F10 (DUST MODIFY)

*For details, see page 4-46.*

# Overall Image Effects

---

This section describes how to operate the effects which change the overall appearance of the image.

---

## Effect Selection

### Top menu selection

The overall image effects are selected from the PICTURE MODIFY menu.

In the PICTURE MODIFY menu, press the required item selection button as shown in the following table to select the effect. For items indicated by "SHIFT," hold down the SHIFT button and press the item selection button.

Item selection button	Function	See page
1 (MULTI MOVE)	Divide up the image into a matrix, and insert moving video images.	4-55
2 (DEFOCUS)	Apply a blurring akin to camera shake to the image.	4-56
SHIFT 2 (BLUR)	Apply a rounded blurring to the edges in the image.	4-58
3 (DIM FADE)	Make the image dim into the distance or fade into the background.	4-60
4 (COMBINE)	Combine the images from DME units.	4-62
5 (BRICK)	Make a solid figure (parallelepiped) with one channel.	4-67
SHIFT 5 (GLOW)	Add the impression of a soft glow.	4-73

<b>Option</b>
---------------

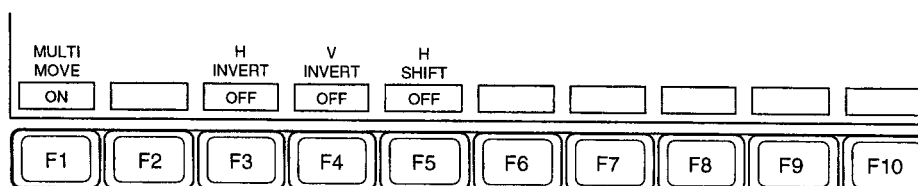
- Item 3 (DIM FADE) and item 4 (COMBINE) are only effective when the BKDM-3050 option is installed.
- Item 5 (BRICK) and item SHIFT 5 (GLOW) are only effective when the BKDM-7060 and BKDM-7070 options are installed.

---

## MULTI MOVE Settings

This effect divides up the image into a matrix of moving pictures.

In the PICTURE MODIFY menu, select item 1 (MULTI MOVE) to display the MULTI MOVE menu.



Function key indications in the MULTI MOVE menu

The following are some of the operations carried out in this menu.

### Toggling the “multi-move” function on and off – F1 (MULTI MOVE)

Press F1 (MULTI MOVE).

When this is on, the following settings are enabled.

### Selecting the size and aspect ratio of the moving insert pictures

Adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of reduction (–8.00 to +8.00)
2	Y	Set y-coordinate of center of reduction (–6.00 to +60.00)
3	Size	Set reduction ratio (0.00 to 100.00)
4	Aspect	Set aspect ratio of reduced pictures (–100.00 to +100.00)

### Selecting a different arrangement for the insert pictures – F3 (H INVERT) to F5 (H SHIFT)

- To invert alternate columns of pictures left-to-right, set F3 (H INVERT) to “ON”.
- To invert alternate rows of pictures top-to-bottom, set F4 (V INVERT) to “ON”.
- To make a brick wall pattern, displacing alternate rows of pictures horizontally, set F5 (H SHIFT) to “ON”.

## Overall Image Effects

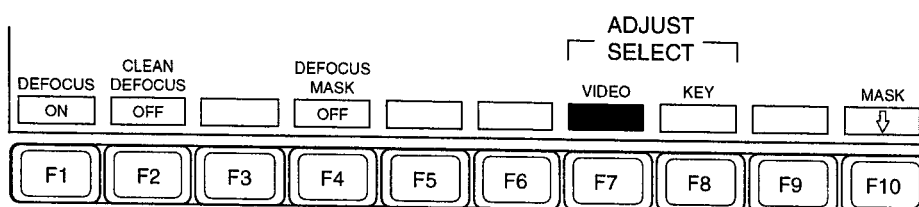
### DEFOCUS Settings

This effect applies a blurring akin to camera shake to the image.

#### Option

- Applying the defocusing effect independently to both video and key signals requires the BKDM-7060 (BKDM-3060 for DME-3000) option.
- To use the defocus mask function requires the BKDM-3040 option.

In the PICTURE MODIFY menu, select item 2 (DEFOCUS) to display the DEFOCUS menu.



Function key indications in the DEFOCUS menu

The following are some of the operations carried out in this menu.

#### Applying a blurring akin to camera shake – F1 (DEFOCUS), F7 (VIDEO), F8 (KEY)

Use the following procedure.

- 1** Set F1 (DEFOCUS) to “ON”.
- 2** Press F7 (VIDEO) or F8 (KEY), then adjust the following parameters.

Knob	Parameter	Setting
1	H	Set horizontal defocusing (0.00 to 100.00)
2	V	Set vertical defocusing (0.00 to 100.00)
3	All	Set horizontal and vertical defocusing

---

### **Preventing the peripheral black level leakage when the defocusing effect is applied – F2 (CLEAN DEFOCUS)**

To eliminate the peripheral black level leakage which occurs at the edge of the screen when using the defocusing effect, set F2 (CLEAN DEFOCUS) to “ON”.

#### **Notes**

- This function is not available on the DME-3000.
- Even with F2 (CLEAN DEFOCUS) set to “ON”, depending on the DEFOCUS parameter settings, the leakage effect may in some cases remain.

### **Applying a wipe mask to the defocusing effect (for video only) – F4 (DEFOCUS MASK), F10 (MASK)**

#### **Note**

This function is not available on the DME-3000.

Use the following procedure.

- 1** Set F4 (DEFOCUS MASK) to “ON”.
- 2** Press F10 (MASK) to display the MASK menu, and set the mask parameters.

*For details of operations in the MASK menu, see the section “MASK Settings” (page 4-78).*

## Overall Image Effects

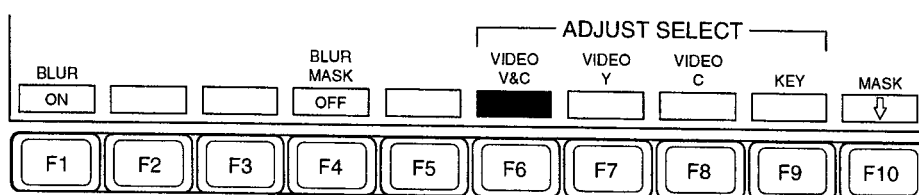
### BLUR Settings

This effect applies a rounded blurring to the edges in the image.

#### Option

- Applying the blur effect independently to both video and key signals requires the BKDM-7060 (BKDM-3060 for DME-3000) option.
- To use the blur mask function requires the BKDM-3040 option.

In the PICTURE MODIFY menu, hold down the SHIFT button and select item 2 (BLUR) to display the BLUR menu.



Function key indications in the BLUR menu

The following are some of the operations carried out in this menu.

#### Applying a rounded blurring to the edges – F1 (BLUR)

Use the following procedure.

- 1 Set F1 (BLUR) to “ON”.
- 2 Press one of F6 to F9 to select what you want to adjust.

**F6 (VIDEO Y&C):** Luminance and chrominance of the video signal

**F7 (VIDEO Y):** Luminance of the video signal

**F8 (VIDEO C):** Chrominance of the video signal

**F9 (KEY):** Key signal

- 3 Adjust the following parameters.

Knob	Parameter	Setting
1	H	Set degree of blurring horizontally (0.00 to 100.00) <sup>a)</sup>
2	V	Set degree of blurring vertically (0.00 to 100.00) <sup>a)</sup>
3	All	Set degree of blurring horizontally and vertically

a) For the F6 (VIDEO Y & C) setting, the parameter values are not shown, but are reflected in the VIDEO Y and VIDEO C parameters.

---

## Applying a wipe mask to the blur effect (for VIDEO only) – F4 (BLUR MASK), F10 (MASK)

### Note

This function is not available on the DME-3000.

Use the following procedure.

- 1** Set F4 (BLUR MASK) to “ON”.
- 2** Press F10 (MASK) to display the MASK menu, and set the parameters.

*For details of operations in the MASK menu, see the section “MASK Settings” (page 4-78).*

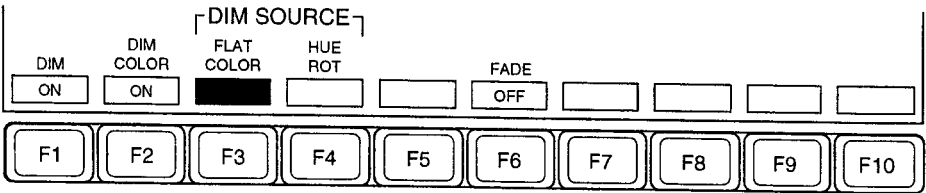
# Overall Image Effects

## DIM & FADE Settings

The “dim” effect makes the image darker as it recedes into the distance (i.e. along the z-axis). The “fade” effect makes the image fade into the background as it recedes into the distance.

**Option** These functions require the BKDM-3050 option.

In the PICTURE MODIFY menu, select item 3 (DIM FADE) to display the DIM & FADE menu.



Function key indications in the DIM & FADE menu

The following are some of the operations carried out in this menu.

### Applying the “dim” function – F1 (DIM)

Use the following procedure.

- 1 Set F1 (DIM) to “ON”.
- 2 Adjust the following parameters.

Knob	Parameter	Setting
1	Start	Set position along z-axis at which dimming starts (–100.00 to +100.00)
2	Gain	Set rate at which dimming proceeds (0.00 to 100.00)



---

### Dimming to a color other than black – F2 (DIM COLOR) to F4 (HUE ROT)

Use the following procedure.

- 1** Set F2 (DIM COLOR) to “ON”.
- 2** To select a uniform color, press F3 (FLAT COLOR), and to use a progressively changing hue, press F4 (HUE ROT).
- 3** Adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue (when “FLAT COLOR” selected)	Set hue (0.00 to 359.99)
	Speed (when “HUE ROT” selected)	Set rate of change of hue per frame (–12.00 to +12.00)

### Applying the “fade” function – F6 (FADE)

- 1** Set F6 (FADE) to “ON”.
- 2** Adjust the following parameters.

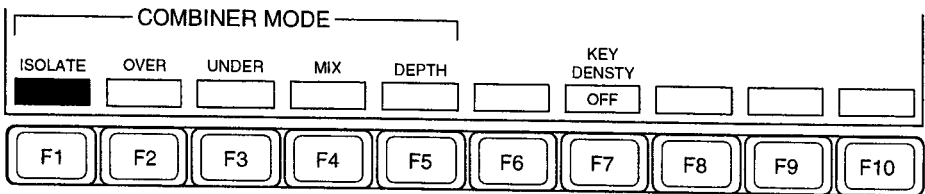
Knob	Parameter	Setting
1	Start	Set position along z-axis at which fading starts (–100.00 to +100.00)
2	Gain	Set rate at which fading proceeds (0.00 to 100.00)

COMBINER Settings

Using up to four DME-7000 units (channels) or two DME-3000 units (channels), it is possible to combine the output images from them. The following methods of combination are available:

- Two-dimensional key signal combination (OVER, UNDER and MIX)
- Three-dimensional combination of key signals with a Z (depth) signal (DEPTH)

In the PICTURE MODIFY menu, select item 4 (COMBINE) to display the COMBINER menu.



Function key indications in the COMBINER menu

The following are some of the operations carried out in this menu.

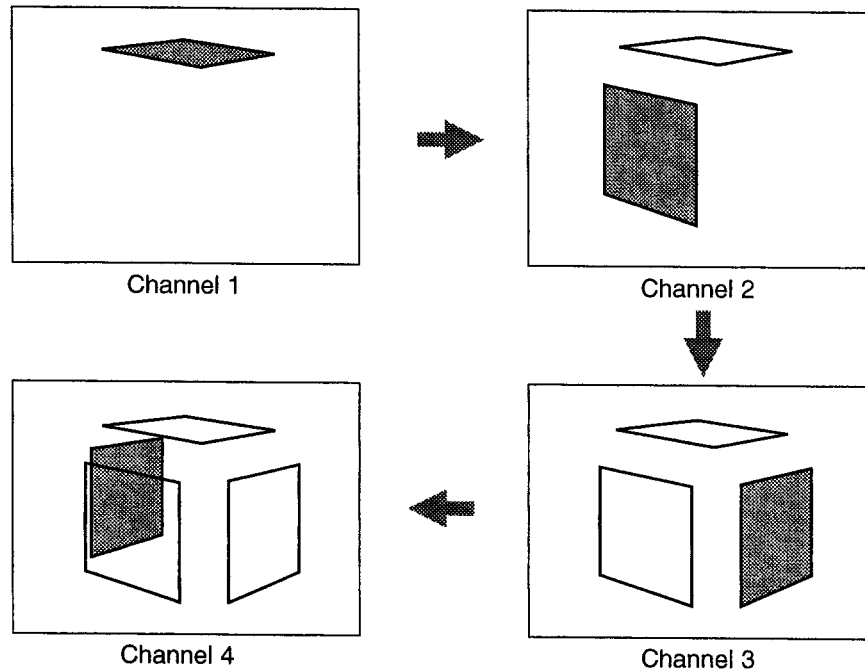
Channels to which menu operations apply


The method of combination of two images is always determined by the settings for the downstream of the two channels.

This means that if, for example, channel 2 is downstream of channel 1, the recommended procedure is to carry out the operations while watching the menus with channel 2 selected.

Similarly, when third and fourth images are also combined, select the most downstream of the channels before making the settings, then select one channel at a time progressively to make the settings.

Regardless of the downstream/upstream relationship, parameter settings always affect all of the channels being operated on.



 (The shaded quadrilaterals represent the images for each of the channels.)

**Displaying the image in a selected channel only – F1 (ISOLATE)**

To display only the selected channel, press F1 (ISOLATE).

## Overall Image Effects

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### Combining images by superimposition

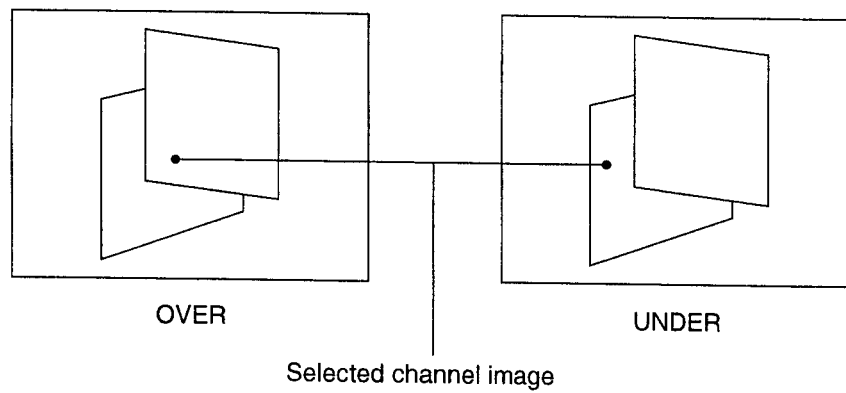
Use the following procedure.

- 1 Press F2 (OVER) or F3 (UNDER).

**F2 (OVER):** Put the selected channel on top.

**F3 (UNDER):** Put the selected channel underneath.

This combines the two images.



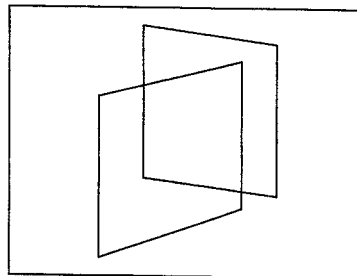
- 2 If necessary, adjust the key density. (See page 4-66.)

### Mixing images – F4 (MIX)

To mix the selected channel image with the upstream image, use the following procedure.

- 1 Press F4 (MIX).

This mixes the two images.



---

**2** Adjust the following parameter.

Knob	Parameter	Setting
1	Mix	Set mix ratio of the superimposed image (0.00 to 100.00)

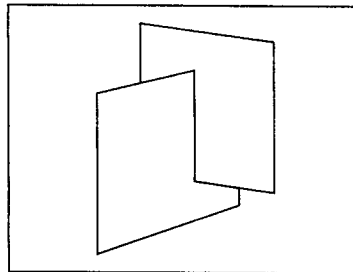
**3** If necessary, adjust the key density. (*See next page.*)

**Combining images three-dimensionally – F5 (DEPTH)**

To combine the selected channel image three-dimensionally with the upstream image, use the following procedure.

**1** Press F5 (DEPTH).

This combines the two images three-dimensionally.



**2** Adjust the following parameter.

Knob	Parameter	Setting
1	Soft	Set the degree of softness of the intersection edge (0.00 to 100.00)

(Continued)

## Overall Image Effects

---

- 3** If necessary, adjust the key density. (*See below.*)

You can vary the overall depth information, and adjust the intersection of the images. Press the LOC XYZ button in the DME control panel, turning it on, and turn the Z-ring.

### Note

If you press the LOC SIZE button, turning it on, and turn the Z-ring, the size will change, but not the depth information.

### Background

A “Trail” image formed using a recursive function in the upstream DME contains depth information, which you can use to combine three-dimensionally with the downstream image. It is not, however, possible to use the depth information in a downstream “Trail” image for combination with the upstream image.

### Adjusting the key density – F7 (KEY DENSTY)

- 1** Set F7 (KEY DENSTY) to “ON”.
- 2** Adjust the following parameter.

Knob	Parameter	Setting
1	Density	Set density of key (0.00 to 100.00)

---

## BRICK Settings

Using a single DME unit, you can create a rectangular parallelepiped, and display images in three surfaces (the top and two sides). The following are the types of images you can display on each of these surfaces.

**Option**

This function requires the BKDM-7060 and BKDM-7070 options.

**Note**

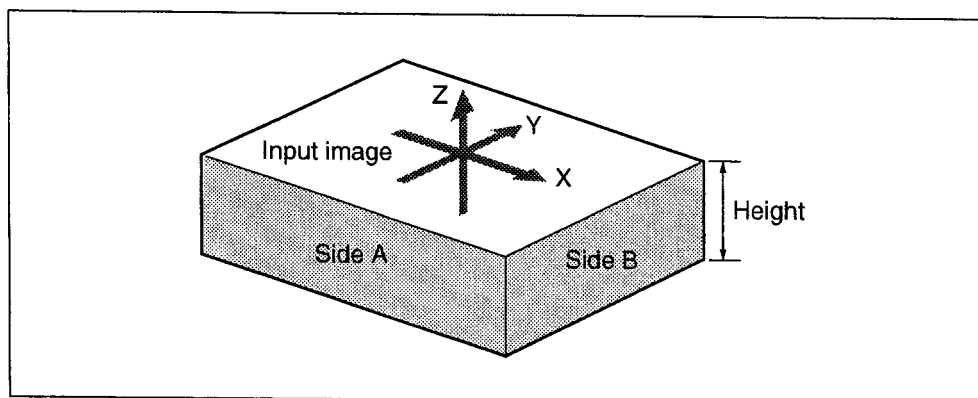
This effect is not available on the DME-3000.

**Top:** input video

**Side A (side adjacent to the long edge of the input image):** input video, external video, or color matte

**Side B (side adjacent to the short edge of the input image):** input video, external video, or color matte

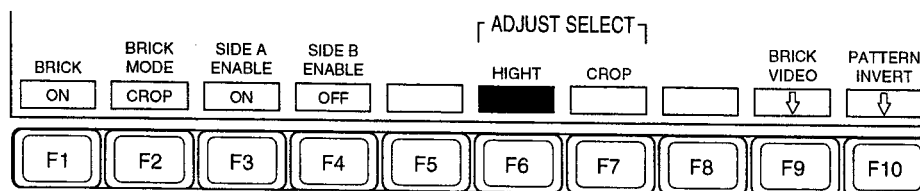
For one of Side A and Side B, you can select a single-hue color matte (FLAT COLOR or HUE ROTATE).



Example of brick effect

## Overall Image Effects

In the PICTURE MODIFY menu, select item 5 (BRICK) to display the BRICK menu.



Function key indications in the BRICK menu

The following are some of the operations carried out in this menu.

### Applying the brick effect – F1 (BRICK) to F7 (CROP)

Use the following procedure.

- 1 Set F1 (BRICK) to “ON”.

A brick appears, with the input image appearing in the top. At this point, the position in the z-axis of the source coordinates is offset by one-half of the thickness of the brick, and as a result the image grows slightly larger.

- 2 Press F6 (HIGHT), then adjust the following parameter.

Knob	Parameter	Setting
1	Hight	Set height (thickness) of the brick (0.00 to 8.00)

- 3 Press F3 (SIDE A ENABLE) or F4 (SIDE B ENABLE), to enable the display of the side faces.



- 4 Press F2 (BRICK MODE) to select the method of inserting the image in the side you selected in step 3.

**CROP:** With the point defined by the Crop Left and Crop Top values as the top left corner, the image is cropped to the size of the side face, and inserted.

**COMPRESSION:** The area defined by the Crop Left, Crop Right, Crop Top, and Crop Bottom values is compressed to fit in the side face.

Normally the "CROP" setting is recommended.

- 5 Press F7 (CROP), and adjust the following parameters.

Knob	Parameter	Setting
1	Top	Set top side CROP position. (–3.20 to +3.20)
2	Left	Set left side CROP position. (–4.20 to +4.20)
3	Right	Set right side CROP position. (–4.20 to +4.20) <sup>a)</sup>
4	Bottom	Set bottom side position. (–3.20 to +3.20) <sup>a)</sup>

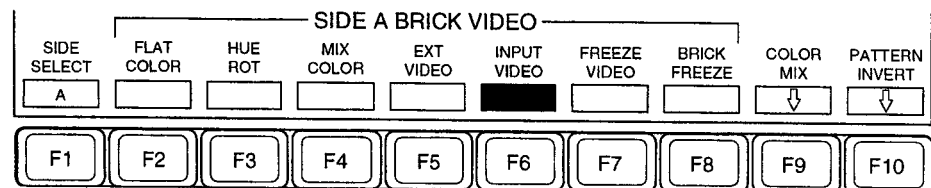
a) Does not appear when "CROP" is selected.

### Selecting the image to insert in a side face – F9 (BRICK VIDEO)

Use the following procedure.

- 1 In the BRICK menu, press F9 (BRICK VIDEO).

The BRICK VIDEO menu appears.



Function key indications in the BRICK VIDEO menu

#### Option

- F4 (MIX COLOR) and F9 (COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F5(EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

- 2 Press F1 (SIDE SELECT) to select the side (Side A or Side B).

(Continued)

## Overall Image Effects

- 3** Press one of F2 to F7, to select the image to insert in the side face.
- F2 (FLAT COLOR): single-hue color matte
  - F3 (HUE ROT): progressively changing hue color matte
  - F4 (MIX COLOR): “mix color”
  - F5 (EXT VIDEO): external video signal
  - F6 (INPUT VIDEO): input video
  - F7 (FREEZE VIDEO): the image held in brick frame memory (*see step 4*)

The setting for F2 to F5 and F9 are the same as in the section “BKGD Settings” (*page 4-8*).

### Note

If you select one of F5 to F7 for a side face, select one of F2 to F4 for the other side face.

- 4** If in step **3** you pressed F5 (EXT VIDEO) or F6 (INPUT VIDEO) to select the input video image, then to freeze the image in the side face press F8 (BRICK FREEZE).

This saves the input image in brick frame memory.

The brick frame memory can only hold one frame. Storing a new image overwrites any existing image in the frame memory.

### Inverting the image in a side face – F10 (PATTERN INVERT)

You can invert the image in a side face, either horizontally or vertically.

Use the following procedure.

- 1** In the BRICK menu, press F10 (PATTERN INVERT).

The PATTERN INVERT menu appears.

SIDE A VIDEO				SIDE B VIDEO					
FRONT H INV	FRONT V INV	BACK H INV	BACK V INV	FRONT H INV	FRONT V INV	BACK H INV	BACK V INV	BRICK VIDEO	
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	↓	
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the PATTERN INVERT menu

- 
- 2** To invert the image in side A, set any of F1 to F4 to “ON”.
- F1 (FRONT H INV): invert the front image horizontally.
  - F2 (FRONT V INV): invert the front image vertically.
  - F3 (BACK H INV): invert the back image horizontally.
  - F4 (BACK V INV): invert the back image vertically.
- 3** To invert the image in side B, set any of F6 (FRONT H INV) to F9 (BACK V INV) to “ON”. The significance of the elements of the function labels is the same as in step 2.

### **Making fine adjustment of the surface join positions**

In the PATTERN INVERT menu, adjust the following parameters.

Knob	Parameter	Setting
1	Side A-H	Adjust horizontal position of side A (–100.00 to +100.00)
2	Side A-V	Adjust vertical position of side A (–100.00 to +100.00)
3	Side B-H	Adjust horizontal position of side B (–100.00 to +100.00)
4	Side B-V	Adjust vertical position of side B (–100.00 to +100.00)

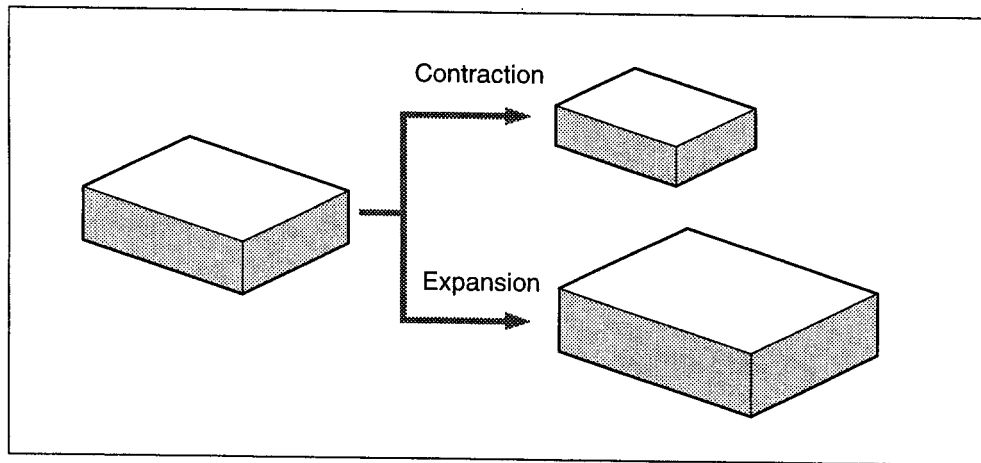
### **Three-dimensional transforms of the brick**

Three-dimensional transforms using the auto cube function (*see page 4-158*) always use the global channel, but for a brick you can carry out operations in the local channel, and the shape of the brick will be preserved.

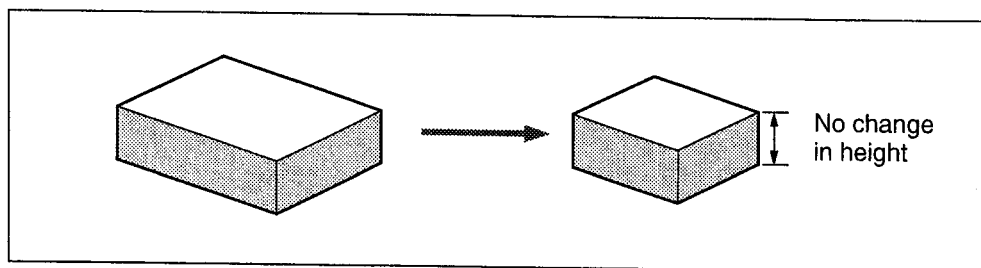
In three-dimensional transform operations, using the DME control panel you can apply deformations to the two-dimensional input image by changing the following parameters, and the side faces will be deformed together with the top, to maintain the shape of the brick.

Parameters adjusted	Change in brick shape
SRCE LOC SIZE (Z value)	The whole brick expands or contracts.
SRCE SKEW (X and Y values)	The side faces are skewed according to the skewing of the top.
SRCE XY-RATE (X and Y values)	The lengths of the side faces change to correspond to the XY compression ratio of the input image.

## Overall Image Effects



Example of "SIZE" variation



Example of "SKEW" and "XY-RATE" variation

### Note

Since there is no depth information in the side faces, it is not possible to use an image including the brick effect for three-dimensional intersection ("DEPTH combine").

---

# GLOW Settings

This function blurs the edges of highlights, and gives the impression of a soft glow.

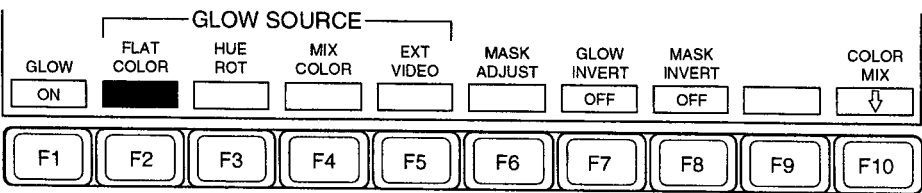
**Option**

To apply the glow effect requires the BKDM-7070 and BKDM-7060 options.

**Notes**

- The following effects use the same hardware as the glow effect, and it is therefore not possible to use more than one of them simultaneously. The last selected effect is effective.  
Glow, Drop shadow (3D), Key border, Brick
- The glow effect is not available on the DME-3000.
- Since there is no depth information in the glow effect portion, it is not possible to use three-dimensional combination (the combiner “DEPTH” function).

In the PICTURE MODIFY menu, hold down the SHIFT button and select item 5 (GLOW) to display the GLOW menu.



Function key indications in the GLOW menu

**Option**

- F4(MIX COLOR) and F10(COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F5(EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

The following are some of the operations carried out in this menu.

## Overall Image Effects

---

### Applying a glow effect – F1 (GLOW) to F5 (EXT VIDEO)

Use the following procedure.

- 1 Set F1 (GLOW) to “ON”.
- 2 Adjust the following parameters.

Knob	Parameter	Setting
1	Clip	Set reference level for highlight detection (–10.00 to +100.00)
2	Gain	Set gain for highlights (–100.00 to +100.00)
3	Soft	Set degree of softness (0.00 to 100.00)

- 3 Press any of F2 (FLAT COLOR) to F5 (EXT VIDEO) to select the signal to be used for insertion in the glow portion.

*The significance of the parameters and their setting ranges are the same as for a background. For details, see the section “BKGD Settings” (page 4-8).*

### Restricting the area of application of the glow effect – F6 (MASK ADJUST)

Use the following procedure.

- 1 Press F6 (MASK ADJUST).
- 2 Adjust the following parameters.

Knob	Parameter	Setting
1	Top	Set position of top edge of mask. (–3.20 to +3.20)
2	Left	Set position of left edge of mask. (–4.20 to +4.20)
3	Right	Set position of right edge of mask. (–4.20 to +4.20)
4	Bottom	Set position of bottom edge of mask. (–3.20 to +3.20)

### Inverting the highlight area – F7 (GLOW INVERT)

Set F7 (GLOW INVERT) to “ON”. This interchanges the highlight areas with the other areas.

### Inverting the sense of the glow mask – F8 (MASK INVERT)

Set F8 (MASK INVERT) to “ON”. This interchanges the masked areas with the other areas.

# Video Signal Effects

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This section describes how to use various effects on the video signal, such as converting it to a negative signal.

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## Effect Selection

### Top menu selection

The video signal effects are selected from the VIDEO MODIFY menu.

In the VIDEO MODIFY menu, press the required item selection button as shown in the following table to select the effect.

Item selection button	Function	See page
1 (POSTER NEGA)	Produce a negative or posterized image.	4-76
2 (SEPIA MONO)	Produce various monochrome image effects.	4-79
3 (CONTRAST)	Adjust the contrast of the image.	4-81
4 (MOSAIC)	Divide up the image into a matrix of rectangles, and average the signal within each rectangle.	4-82
5 (SKETCH)	Apply the effect of a sketch, water color, or oil painting.	4-84

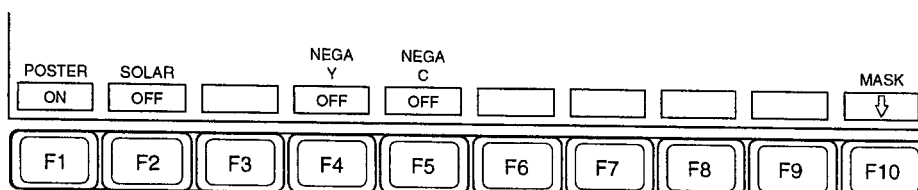
<b>Option</b>
---------------

Item 5 (SKETCH) is only effective when the BKDM-7041 option is installed.

### POSTER & NEGA (Negative) Settings

Posterization reduces the number of quantization levels in the luminance signal, and correspondingly solarization reduces the number of quantization levels in the chrominance signal. The “NEGA” function produces a negative signal, but this may be applied to luminance and chrominance signals independently.

In the VIDEO MODIFY menu, select item 1 (POSTER NEGA) to display the POSTER & NEGA menu.



Function key indications in the POSTER & NEGA menu

The following are some of the operations carried out in this menu.

#### Applying posterization – F1 (POSTER)

Use the following procedure.

- 1** Set F1 (POSTER) to “ON”.
- 2** Adjust the following parameter.

Knob	Parameter	Setting
1	Post	Set degree of coarsening of luminance signal (0.00 to 100.00)



---

### Applying solarization – F2 (SOLAR)

Use the following procedure.

- 1 Set F2 (SOLAR) to “ON”.

F1 (POSTER) and F2 may both be on simultaneously.

- 2 Adjust the following parameter.

Knob	Parameter	Setting
2	Sola	Set degree of coarsening of chrominance signal (0.00 to 100.00)

### Producing a negative picture – F4 (NEGA Y) and F5 (NEGA C)

Use the following procedure.

- 1 Set F4 (NEGA Y) to “ON”, to invert the luminance signal.
- 2 Set F5 (NEGA C) to “ON”, to invert the chrominance signal.

F4 and F5 may both be on simultaneously.

#### Note

Setting F1 (POSTER) or F2 (SOLAR) to “ON” automatically disables the “sepia” function described in the next section.

## Video Signal Effects

### MASK Settings

When posterization, solarization, negative image, “sepia” cast, monochrome, contrast adjustment, mosaic sketch, fefocus, or blur effects are applied, you can apply a wipe pattern as a mask so that (in the “NORMAL” mode) the effect is only applied inside the wipe pattern. The INVERT function switches this so that the effect is only applied outside the wipe pattern.

#### Option

This function requires the BKDM-3040 option.

#### Masking the effect

In the POSTER & NEGA menu, press F10 (MASK).

The MASK menu appears.

PATTERN SELECT				ADJUST SELECT					
MODIFY MASK	MAIN	MIX MODE	SUB	POS SIZE	ASPECT ROT	ROT SPEED	MASK INVERT	DFCS/BLR MASK	PATTERN MODIFY
ON		MIX				OFF	OFF	OFF	↓

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
----	----	----	----	----	----	----	----	----	-----

Function key indications in the MASK menu

The same menu appears when you press F10 in other menus including the BLUR, SEPIA & MONO, CONTRAST, MOSAIC, and SKETCH menus.

#### Toggling the mask on and off

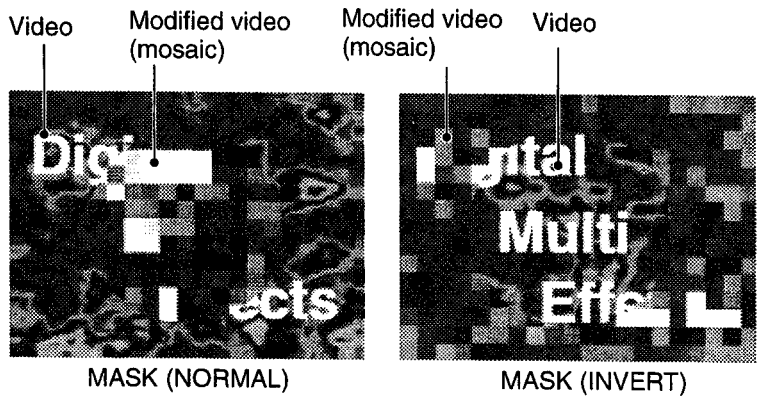
Set F1 (MODIFY MASK) to “ON” or “OFF”. You can also combine two patterns, or use various modifiers.

To apply a mask to a defocus or blur effect, set F9 (DFCS/BLR MASK) to “ON”.

#### Selecting the mask pattern or changing its shape

*Operations in the MASK menu are basically the same as wipe crop operations. F9 (WIPE EDGE), however, does not appear. See page 4-20.*

# Video Signal Effects



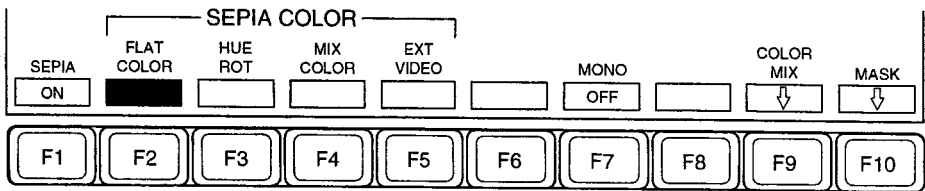
**Note**

It is not possible to apply a border (see page 4-14) to the edge of the mask area.

## SEPIA & MONO (Monochrome) Settings

The “sepia” effect applies a cast of a particular hue (not necessarily sepia) over the entire video image. The monochrome effect makes the image monochrome.

In the VIDEO MODIFY menu, select item 2 (SEPIA MONO) to display the SEPIA & MONO menu.



Function key indications in the SEPIA & MONO menu

**Option**

- F4 (MIX COLOR) and F9 (COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F5 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

The following are some of the operations carried out in this menu.

## Video Signal Effects

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### Applying a cast – F1 (SEPIA) to F5 (EXT VIDEO)

Use the following procedure.

- 1** Set F1 (SEPIA) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	Y	Set mix amount of “sepia” luminance signal (0.00 to 100.00)
2	C	Set mix amount of “sepia” chrominance signal (0.00 to 100.00)
3	All	Set mix amount of “sepia” chrominance and luminance signals

- 3** Press any of F2 (FLAT COLOR) to F5 (EXT VIDEO) to select the cast signal to be laid over the image, using the same operations as for background settings.

*The significance of the parameters and their setting ranges are the same as for a background. For details, see the section “BKGD Settings” (page 4-8).*

### Applying the monochrome effect – F7 (MONO)

Set F7 (MONO) to “ON”.

The color image changes to monochrome.

#### Note

If a “sepia” cast is applied, F1 (POSTER) and F2 (SOLAR) in the POSTER & NEGA menu are automatically turned off.

### Masking with a pattern – F10 (MASK)

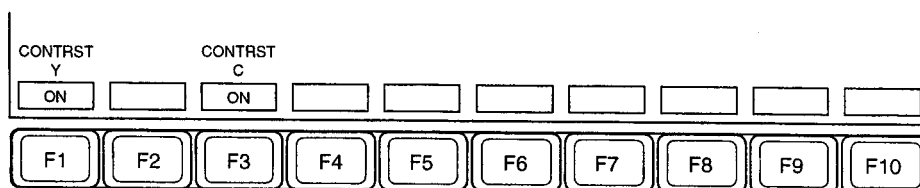
Press F10 (MASK) to display the MASK menu, then set the pattern type and modifiers.

*For details, see the section “MASK Settings” (page 4-78).*

## CONTRAST Settings

This effect adjusts the contrast of the image.

In the VIDEO MODIFY menu, select item 3 (CONTRAST) to display the CONTRAST menu.



Function key indications in the CONTRAST menu

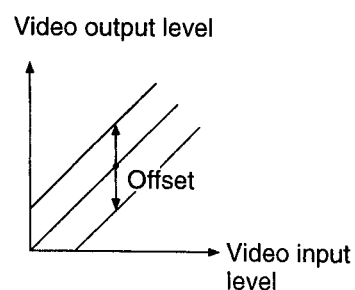
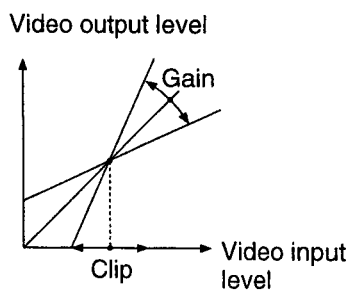
The following are some of the operations carried out in this menu.

### Adjusting the contrast of the luminance signal – F1 (CONTRST Y)

Use the following procedure.

- 1** Set F1 (CONTRST Y) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	Clip	Set luminance clip level (–10.00 to +110.00)
2	Gain	Set luminance contrast gradient (–100.00 to +100.00)
3	Offset	Set offset reference level (–100.00 to +100.00)



## Video Signal Effects

---

### Adjusting the contrast of the chrominance signal – F3 (CONTRST C)

- 1** Set F3 (CONTRST C) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
2	Gain	Set chrominance contrast gradient (–100.00 to +100.00)
3	Offset	Set offset reference level (–100.00 to +100.00)

### Masking with a pattern – F10 (MASK)

Press F10 (MASK) to display the MASK menu, then set the pattern type and modifiers.

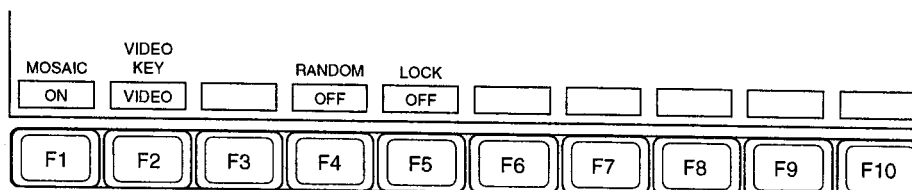
*For details, see the section “MASK Settings” (page 4-78).*

---

## MOSAIC Settings

The mosaic effect divides up the image into a matrix of rectangles, and averages the signal within each rectangle, giving a mosaic effect.

In the VIDEO MODIFY menu, select item 4 (MOSAIC) to display the MOSAIC menu.



Function key indications in the MOSAIC menu

The following are some of the operations carried out in this menu.

---

### Applying the mosaic effect – F1 (MOSAIC) to F5 (LOCK)

Use the following procedure.

- 1** Set F1 (MOSAIC) to “ON”.
- 2** Press F2 (VIDEO KEY), to select the signal or signals to which the mosaic effect is applied.  
**V & K:** Video and key signals  
**VIDEO:** Video signals only  
**KEY:** Key signals only

- 3** Adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of mosaic tile (0.00 to 100.00)
2	Aspect	Set aspect ratio of mosaic tile (–100.00 to +100.00)

- 4** For mosaic tiles of randomly varying sizes, set F4 (RANDOM) to “ON”.

- 5** To select a fixed random pattern, set F5 (LOCK) to “ON”.

- 6** Adjust the following parameters.

Knob	Parameter	Setting
1	Speed (when F5 is OFF)	Set rate at which the random pattern changes (–100.00 to +100.00)
	Ptrn (when F5 is ON)	Select random pattern number (0.00 to 25.00)
2	Random	Set degree of randomness (0.00 to 100.00)

### Masking with a pattern – F10 (MASK)

Press F10 (MASK) to display the MASK menu, then set the pattern type and modifiers.

*For details, see the section “MASK Settings” (page 4-78).*

### SKETCH Settings

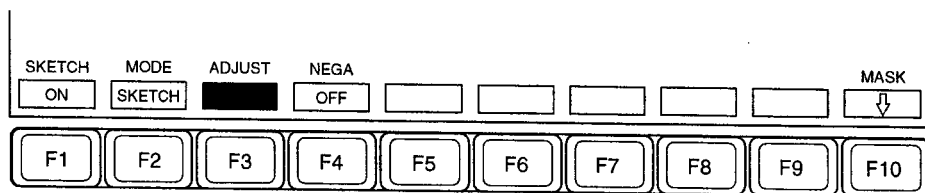
---

The sketch effect provides a range of effects based on the outline of the image, and giving impressions of sketching, drawing or relief.

**Option**

This function requires the BKDM-7041 option.

In the VIDEO MODIFY menu, select item 5 (SKETCH) to display the SKETCH menu.



Function key indications in the SKETCH menu (when "SKETCH" was selected)

The following are some of the operations carried out in this menu.

#### Applying a sketch effect – F1 (SKETCH) to F9 (CANVAS FRM MEM)

Use the following procedure.

- 1** Set F1 (SKETCH) to "ON".
- 2** Press F2 (MODE), to select the way in which the outline is applied. Pressing F2 cycles through the following options: SKETCH, ENHANC, DRAW1, DRAW2, and RELIEF.

**SKETCH:** Apply an effect like a sketch.

**ENHANC:** Enhance the outlines.

**DRAW1:** Use a two-valued outline extraction signal.

**DRAW2:** Use a continuous outline extraction signal.

**RELIEF:** Apply a bas-relief effect.

When you selected "RELIEF", see "Applying a relief effect" (page 4-86).



## Video Signal Effects

- 3** Press F3 (ADJUST), and adjust the following parameters.

When you selected “SKETCH”:

Knob	Parameter	Setting
1	Clip	Set reference level for outline extraction (0.00 to 100.00)
2	Gain	Set image gain for outline extraction (–100.00 to +100.00)
3	Mix	Set mix amount for input video (0.00 to 100.00)
4	C Gain	Set chroma gain of input video (–100.00 to +100.00)

When you selected “ENHANC”:

Knob	Parameter	Setting
1	Clip	Set reference level for outline extraction (0.00 to 100.00)
3	Mix	Set mix amount for input video (0.00 to 100.00)
4	C Gain	Set chroma gain of input video (–100.00 to +100.00)

When you selected “DRAW1” or “DRAW2”:

Knob	Parameter	Setting
1	Clip	Set reference level for outline extraction (0.00 to 100.00)
3	Mix	Set mix amount for input video (0.00 to 100.00)

- 4** To invert the black/white sense of the image used for outline extraction or interchange the outlines and non-outline portions, press F4 (NEGA).
- 5** If you selected “ENHANC”, “DRAW1”, or “DRAW2”, to apply a single hue color to the outline portions, set F5 (FLAT COLOR) to “ON”, and to use a progressively changing hue color set F6 (HUE ROT) to “ON”, then adjust the parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue (when “FLAT COLOR” is selected)	Set hue (0.00 to 359.99)
	Speed (when “HUE ROT” is selected)	Set rate of change of hue per frame (–12.00 to +12.00)

(Continued)

## Video Signal Effects

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- 6** If you selected “DRAW1” or “DRAW2”, to apply a color to portions other than the outlines, set one of F7 (CANVAS FLAT) to F9 (CANVAS FRM MEM) to “ON”.

**F7 (CANVAS FLAT):** any single hue color

**F8 (CANVAS HUE ROT):** a progressively changing hue color

**F9 (CANVAS FRM MEM):** an image from frame memory

*The color settings when you select F7 or F8 are the same as for the outline portions. For details of the image used when you select F9, see page 8-5.*

### Applying a relief effect – F1 (SKETCH) to F7 (HUE ROT)

Use the following procedure.

- 1** Set F1 (SKETCH) to “ON”.
- 2** Press F2 (MODE), to select “RELIEF”.
- 3** Press F3 (ADJUST), and adjust the following parameters.

Knob	Parameter	Setting
1	Offset	Set intensity level for relief (0.00 to 100.00)
2	Gain	Set gain for relief (–100.00 to +100.00)
3	Mix	Set mix amount of relief pattern and luminance signal of input video (0.00 to 100.00)

- 4** To change the relief pattern, press F4 (PATTERN). Each time you press the button the way in which the light impinges changes in four steps.
- 5** Press one of the following, to select the signal to be mixed with the relief pattern.

**F5 (VIDEO):** input video image chrominance signal

**F6 (FLAT COLOR):** any single hue color

**F7 (HUE ROT):** a progressively changing hue color

---

## 6 Adjust the following parameters.

### When you selected F5 (VIDEO):

Knob	Parameter	Setting
1	C Gain	Set chroma gain of input image (–100.00 to +100.00)

### When you selected F6 (FLAT COLOR):

Knob	Parameter	Setting
2	Saturation	Set saturation of “FLAT COLOR” (0.00 to 100.00)
3	Hue	Set hue of “FLAT COLOR” (0 to 359.99)

### When you selected F7 (HUE ROT):

Knob	Parameter	Setting
2	Saturation	Set HUE ROT saturation (0.00 to 100.00)
3	Speed	Set rate of change of hue per frame (–12.00 to +12.00)

### Masking with a pattern – F10 (MASK)

Press F10 (MASK) to display the MASK menu, then set the pattern type and modifiers.

*For details, see the section “MASK Settings” (page 4-78).*

# Nonlinear Effects

This section describes how to use nonlinear effects to provide a variety of whole-picture transformations.

Option

The nonlinear effects require the BKDM-3030 option.  
The following functions also require the BKDM-7031 option:  
RIPPLE2, TWIST, EXPLOSION, SWIRL, BLIND, KALEIDOSCOPE, MULTI MIRROR, and MELT

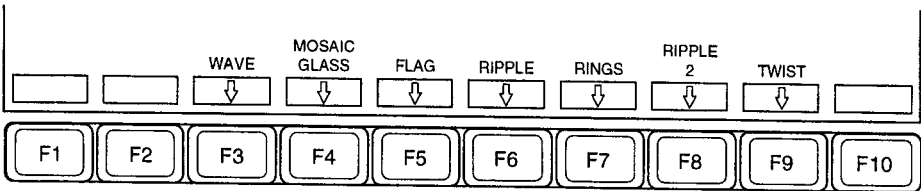
## Effect Selection

### Top menu selection

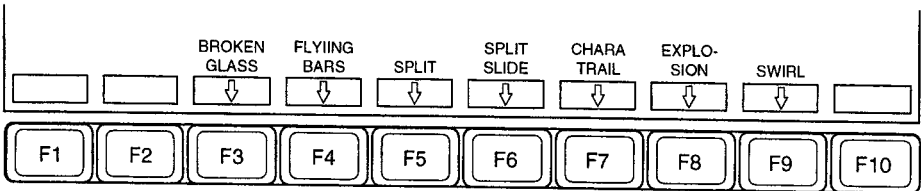
The nonlinear effects are selected from the NONLINEAR menu.

The NONLINEAR menu contains four sets of function key indications, selected with item selection buttons 1 to 4.

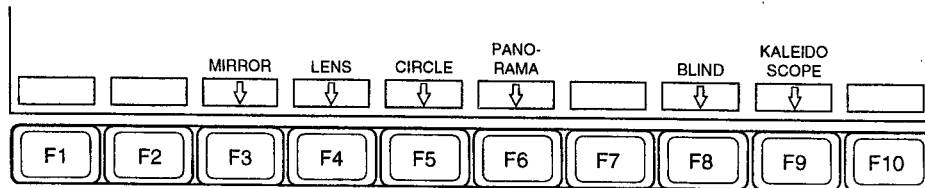
Item	Function	See page
1	Group 1 function key indications	4-89
2	Group 2 function key indications	4-90
3	Group 3 function key indications	4-90
4	Group 4 function key indications	4-90



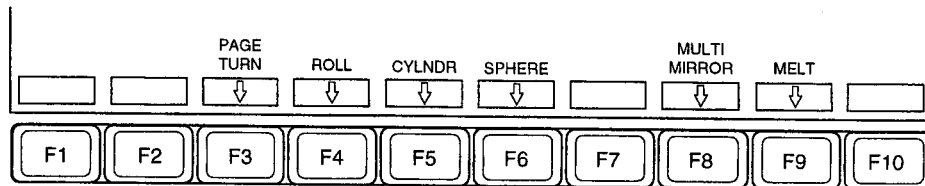
Function key indications in the NONLINEAR menu (group 1)



Function key indications in the NONLINEAR menu (group 2)



Function key indications in the NONLINEAR menu (group 3)



Function key indications in the NONLINEAR menu (group 4)

## Selection from each group

In the NONLINEAR menu, press the required function key as shown in the following tables to select the effect.

### Note

It is only possible to have one nonlinear effect selected at a time. Therefore, setting one of these functions to “ON” automatically switches an existing “ON” function off.

### Selecting from the first set of function key indications

Function key	Function	See page
F3 (WAVE)	Provide a wavy effect on the image.	4-91
F4 (MOSAIC GLASS)	Provide a longitudinal wave effect on the image.	4-98
F5 (FLAG)	Provide the effect of a waving flag.	4-98
F6 (RIPPLE)	Create ripples.	4-99
F7 (RINGS)	Break the picture up into rings.	4-101
F8 (RIPPLE2)	Provide a rippling effect similar to RIPPLE.	4-103
F9 (TWIST)	Apply a twisting effect.	4-105

## Nonlinear Effects

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### Selecting from the second set of function key indications

Function Key	Function	See page
F3 (BROKEN GLASS)	Shatter the picture into fragments.	4-106
F4 (FLYING BARS)	Break the picture into separately moving strips.	4-107
F5 (SPLIT)	Split the picture horizontally and vertically.	4-108
F6 (SPLIT SLIDE)	Break the picture into strips moving apart alternately.	4-109
F7 (CHARA)	Provide the effect of pulling out a "tail" from a peripheral part of the image.	4-111
F8 (EXPLOSION)	Provide an effect of the image exploding and breaking into fine pieces.	4-112
F9 (SWIRL)	Apply a swirling effect.	4-114

### Selecting from the third set of function key indications

Function Key	Function	See page
F3 (MIRROR)	Reflect part of the image.	4-115
F4 (LENS)	Provide the effect of seeing part of the image through a lens.	4-116
F5 (CIRCLE)	Make the image circular.	4-118
F6 (PANORAMA)	Provide an effect of enhanced perspective by curving the upper and lower edges of the image.	4-119
F8 (BLIND)	Divide the image into bars or wedges, and rotate the individual pieces.	4-120
F9 (KALEIDOSCOPE)	Provide a kaleidoscope-like effect.	4-121

### Selecting from the fourth set of function key indications

Function Key	Function	See page
F3 (PAGE TURN)	Provide the effect of a page turning.	4-123
F4 (ROLL)	Provide the effect of rolling the image up like a scroll.	4-125
F5 (CYLNDR)	Provide the effect of wrapping the image around a cylinder.	4-126
F6 (SPHERE)	Provide the effect of wrapping the image around a sphere.	4-128
F8 (MULTI MIRROR)	Provide arrays of alternately mirror-image and non-mirror-image portions.	4-129
F9 (MELT)	Provide an effect as though the image were melting away from the edge.	4-130

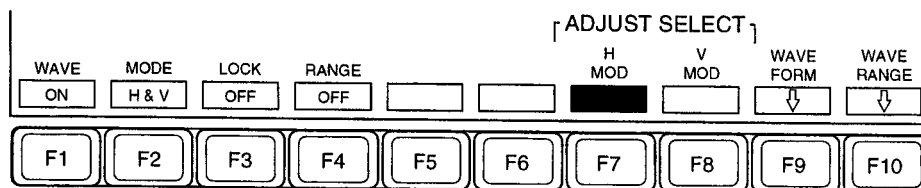
Note that in this manual the term "overlap nonlinear effects" is used to refer to the PAGE TURN, ROLL, CYLINDER and SPHERE effects.

---

## WAVE Settings

This provides a wavy effect on the image.

In group 1 of the NONLINEAR menu, press F3 (WAVE) to display the WAVE menu.



Function key indications in the WAVE menu

The following are some of the operations carried out in this menu.

### Toggle the wave effect on and off – F1 (WAVE)

Press F1 (WAVE).

When this is on, the following settings are enabled.

### Selecting the wave mode – F2 (MODE)

Press F2 (MODE), to select either “H&V”, “SLANT”, or “SIZE”.

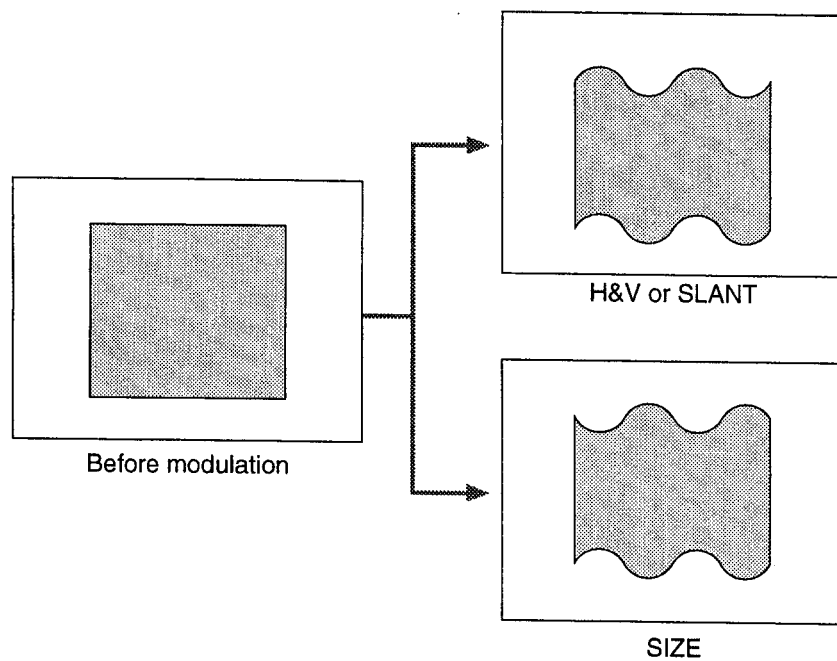
“**H & V**”: The wavy effect is applied either horizontally or vertically or both simultaneously.

“**SLANT**”: The wavy effect is applied in a specified direction. In this case it can only be applied in one direction at a time.

“**SIZE**”: The wavy effect is applied to the size in a specified direction. In this case it can only be applied in one direction at a time.

## Nonlinear Effects

---



**Option**

Selecting "SIZE" requires the BKDM-7031 option.



## Adjusting the wave pattern horizontally – F7 (H MOD)

Use the following procedure.

- 1** Press F7 (H MOD).
- 2** Adjust the following parameters, which depend on the setting of F2 (MODE).

**When F2 (MODE) is “H&V”:**

Knob	Parameter	Setting
1	H Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	H Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	H Mod Offset (when F3 is “ON”)	Set phase offset and direction of the waves (–16.00 to +16.00)
	H Mod Speed (when F3 is “OFF”)	Set direction and speed of wave movement (–100.00 to +100.00)

**When F2 (MODE) is “SLANT” or “SIZE”:**

Knob	Parameter	Setting
1	H Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	H Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	H Mod Offset (when F3 is “ON”)	Set phase offset and direction of the waves (–16.00 to +16.00)
	H Mod Speed (when F3 is “OFF”)	Set direction and speed of wave movement (–100.00 to +100.00)
4	Slant Angle	Set orientation of wave rotation (–8.00 to +8.00)

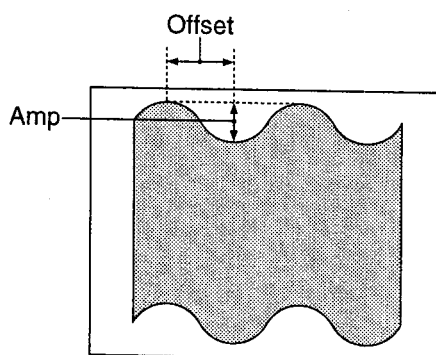
## Nonlinear Effects

### Adjusting the wave pattern vertically (when "H&V" is selected only) – F8 (V MOD)

Use the following procedure.

- 1** Press F8 (V MOD).
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	V Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	V Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	V Mod Offset (when F3 is "ON")	Set phase offset and direction of the waves (–16.00 to +16.00)
	V Mod Speed (when F3 is "OFF")	Set direction and speed of wave movement (–100.00 to +100.00)



### Stopping the wave motion – F3 (LOCK)

Set F3 (LOCK) to "ON" to stop the wave motion. Press it again to restart movement.

---

## Restricting the wavy modulation to a particular part of the image – F4 (RANGE)

Set F4 (RANGE) to “ON”.

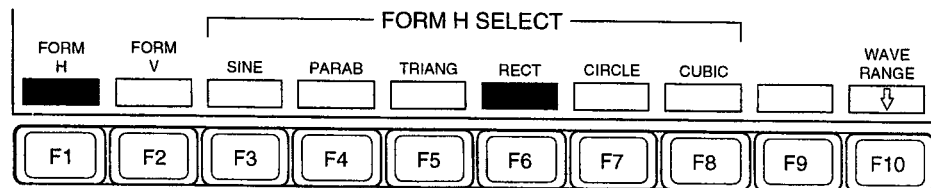
This restricts the wavy modulation to the current setting of the range.

*For details of the range setting see “Setting the wave range” (on next page).*

## Selecting the waveform – F9 (WAVE FORM)

Use the following procedure.

- 1 Press F9 (WAVE FORM).  
The WAVE FORM menu appears.



Function key indications in the WAVE FORM menu

- 2 When “H & V” is selected as the wave mode, press either of F1 (FORM H) and F2 (FORM V).  
(When F2 (MODE) is set to “SLANT” or “SIZE”, this operation is not required.)

**F1 (FORM H):** horizontal waveform

**F2 (FORM V):** vertical waveform

- 3 Press one of F3 (SINE) to F8 (CUBIC) to select the waveform.

**F3 (SINE):** sine wave

**F4 (PARAB):** parabola

**F5 (TRIANG):** triangular wave

**F6 (RECT):** square wave

**F7 (CIRCLE):** circle

**F8 (CUBIC):** cubic polynomial

## Nonlinear Effects

- 4** Adjust the following parameters.  
When “H & V” is selected as the wave mode:

Knob	Parameter	Setting
1	H	Set degree of randomness horizontally (0.00 to 100.00)
2	V	Set degree of randomness vertically (0.00 to 100.00)
3	All	Set degree of randomness horizontally and vertically

When “SLANT” or “SIZE” is selected as the wave mode:

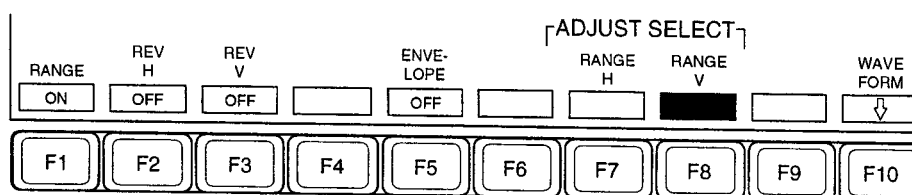
Knob	Parameter	Setting
1	Random	Set degree to which waveform is random (0.00 to 100.00)

### Setting the wave range – F10 (WAVE RANGE)

Use the following procedure.

- 1** Press F10 (WAVE RANGE).

The WAVE RANGE menu appears.



Function key indications in the WAVE RANGE menu

- 2** Set F1 (RANGE) to “ON”.  
**3** To adjust the horizontal range of the wave effect, press F7 (RANGE H).  
**4** Adjust the following parameters.

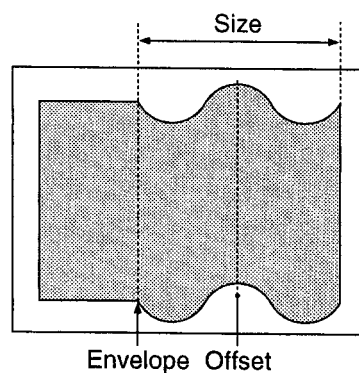
Knob	Parameter	Setting
1	H Size	Set extent of range (0.00 to 100.00)
2	H Offset	Set center of range (–8.00 to +8.00)

- 
- 5** To adjust the smoothness of the boundary of the modulated portion, set F5 (ENVELOPE) to “ON”, then adjust the following parameter.

Knob	Parameter	Setting
3	Envelope	Set smoothness of the boundary portion (0.00 to 100.00)

**Option**

The ENVELOPE function requires the BKDM-7031 option.



- 6** When F2 (MODE) is set to “H&V”, press F8 (RANGE V), and adjust the vertical range of the wave effect as required.

The parameter settings are the same as in steps **4** and **5** above.

- 7** To invert the sense of the range, so that the wave effect applies outside rather than inside, set F2 (REV H) or F3 (REV V) to “ON”.

## Nonlinear Effects

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### MOSAIC GLASS Settings

---

This provides a longitudinal wavy effect on the image.

In group 1 of the NONLINEAR menu, press F4 (MOSAIC GLASS) to display the MOSAIC GLASS menu.

						ADJUST SELECT			
MOSAIC GLASS	MODE	LOCK	RANGE			H MOD	V MOD	MOSAIC FORM	MOSAIC RANGE
ON	H&V	OFF	OFF					↓	↓

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
----	----	----	----	----	----	----	----	----	-----

Function key indications in the MOSAIC GLASS menu

The items shown in this menu, and the function key operations are the same as in the WAVE menu. In this case, however, the wave mode has no “SIZE” option.

*For details see the section “WAVE Settings” (page 4-91).*

### FLAG Settings

---

This provides the effect of a waving flag.

In group 1 of the NONLINEAR menu, press F5 (FLAG) to display the FLAG menu.

FLAG		LOCK	RANGE					FLAG FORM	FLAG RANGE
ON		OFF	OFF					↓	↓

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
----	----	----	----	----	----	----	----	----	-----

Function key indications in the FLAG menu

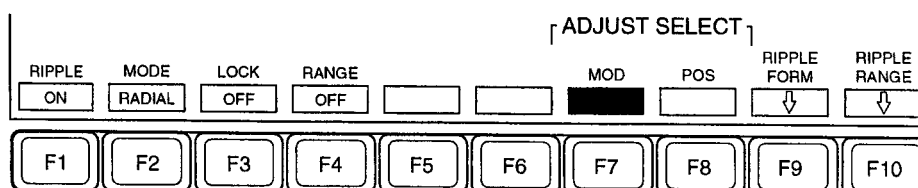
The items shown in this menu, and the function key operations are the same as in the WAVE menu, except that F2 (MODE), F7 (H MOD), and F8 (V MOD) do not appear.

*For details see the section “WAVE Settings” (page 4-91).*

## RIPPLE Settings

This effect creates ripples on the image.

In group 1 of the NONLINEAR menu, press F6 (RIPPLE) to display the RIPPLE menu.



Function key indications in the RIPPLE menu

The following are some of the operations carried out in this menu.

*For details of the functions provided by F3 (LOCK), F4 (RANGE), F9 (RIPPLE FORM) and F10 (RIPPLE RANGE), see the section “WAVE settings” (page 4-91).*

### RIPPLE FORM menu and RIPPLE RANGE menu

Operations in the RIPPLE FORM menu selected by pressing F9 in the RIPPLE menu are basically the same as in the WAVE FORM menu selected by pressing F9 in the WAVE menu. In the RIPPLE FORM menu, however, the “PLUS ONLY” function is assigned to F1. When F1 is set to “ON”, the modulation is applied only in the positive direction (in the direction of expanding the image).

### Toggling the ripple effect on and off – F1 (RIPPLE)

Press F1 (RIPPLE).

When this is set to “ON”, the following settings are enabled.

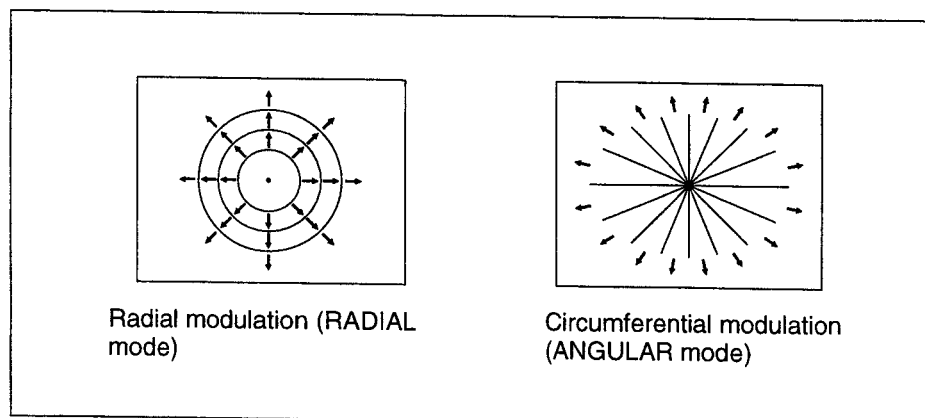
## Nonlinear Effects

### Selecting the ripple mode – F2 (MODE)

Press F2 (MODE), to select either of the following.

“**RADIAL**”: Points at the same distance from the center of the ripple move in the same way.

“**ANGULR**”: Points at the same angle from the center of the ripple move in the same way.



Modulation modes and directions

### Adjusting the size and other properties of the ripple pattern – F7 (MOD)

**1** Press F7 (MOD).

**2** Adjust the following parameters.

Knob	Parameter	Setting
1	Mod Amp	Set direction and amplitude of the ripples (0.00 to 100.00)
2	Mod Freq	Set degree of fineness of the ripples (0.00 to 100.00)
3	Mod Offset (when F3 is "ON")	Set phase offset and direction of the ripples (–8.00 to +8.00)
	Mod Speed (when F3 is "OFF")	Set direction and speed of ripple movement (–100.00 to +100.00)



---

## Adjusting the position of the center of the ripples – F8 (POS)

- 1 Press F8 (POS).
- 2 Adjust the following parameters.

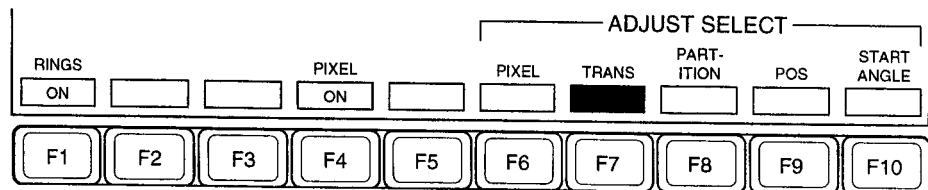
Knob	Parameter	Setting
1	X	Set x-coordinate of center position (–4.00 to +4.00)
2	Y	Set y-coordinate of center position (–3.00 to +3.00)

---

## RINGS Settings

This effect breaks the picture up into rings, and moves them in a selected direction while turning.

In group 1 of the NONLINEAR menu, press F7 (RINGS) to display the RINGS menu.



Function key indications in the RINGS menu

The following are some of the operations carried out in this menu.

### Applying the rings effect – F1 (RINGS) and F7 (TRANS) to F10 (START ANGLE)

Use the following procedure.

- 1 Set F1 (RINGS) to "ON".

*(Continued)*

## Nonlinear Effects

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- 2** To adjust the nature of the transition, press F7 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Random	Set degree to which distances moved by different pieces of image are randomized (0.00 to 100.00)
3	Spiral	Set degree of movement in the angular direction as the transition proceeds (-100.00 to +100.00)

- 3** To adjust the way in which the pieces break up, press F8 (PARTITION), then adjust the following parameters.

Knob	Parameter	Setting
1	Width	Set width of partition (0.00 to 100.00)
2	Random	Set degree to which partition width is random (0.00 to 100.00)

- 4** To adjust the position of the center of the rings, press F9 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center position (-5.00 to +5.00)
2	Y	Set y-coordinate of center position (-4.00 to +4.00)

- 5** To set the starting angle for the effect, press F10 (START ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set starting angle for effect (-8.00 to +8.00)

### Breaking the image into pixels – F4 (PIXEL) and F6 (PIXEL)

Use the following procedure.

- 1** Set F4 (PIXEL) to “ON”.
- 2** Press F6 (PIXEL), then adjust the following parameters.

Knob	Parameter	Setting
1	Density	Set degree to which periphery of image disappears (0.00 to 100.00)
2	Random	Set degree of jaggedness of edges of individual pieces (0.00 to 100.00)

**Option**

The PIXEL effect requires the BKDM-7031 option.

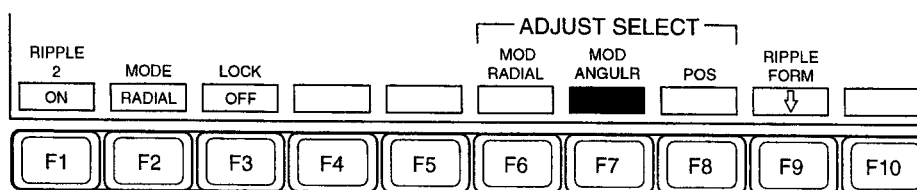
## RIPPLE2 Settings

RIPPLE2 provides a rippling effect similar to RIPPLE. There are two variants of the modulation (RADIAL and ANGULAR), and you can apply the two simultaneously.

**Option**

This function requires the BKDM-7031 option.

In group 1 of the NONLINEAR menu, select F8 (RIPPLE2) to display the RIPPLE2 menu.



Function key indications in the RIPPLE2 menu

The following are some of the operations carried out in this menu.  
*For details of the function of F8 (POS), see the section “RIPPLE Settings” (page 4-99).*

### Applying the RIPPLE2 effect – F1 (RIPPLE2), F2 (MODE), F6 (MOD RADIAL) and F7 (MOD ANGULR)

Use the following procedure.

- 1** Set F1 (RIPPLE2) to “ON”.
- 2** Press F2 (MODE), to select the modulation mode.

*For “RADIAL” and “ANGULR”, see page 4-100.*

Selecting “BOTH” applies both RADIAL and ANGULAR ripples simultaneously.

Pressing F2 cycles through the settings in the following order:  
RADIAL → ANGULAR → BOTH.

*(Continued)*

## Nonlinear Effects

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- 3** To adjust the RADIAL modulation press F6 (MOD RADIAL), and to adjust the ANGULAR modulation press F7 (MOD ANGULR), then adjust the following parameters.

Knob	Parameter	Setting
1	Mod Amp	Set direction and amplitude of the ripples (0.00 to 100.00)
2	Mod Freq	Set degree of fineness of the ripples (0.00 to 100.00)
3	Mod Offset (when F3 is "ON")	Set phase offset and direction of the ripples (-16.00 to +16.00)
	Mod Speed (when F3 is "OFF")	Set direction and speed of ripple movement (-100.00 to +100.00)

### Stopping the ripple movement - F3 (LOCK)

Set F3 (LOCK) to "ON". Pressing F3 toggles between stationary and moving ripples.

### Selecting the form of the ripples – F9 (RIPPLE FORM)

- 1** Press F9 (RIPPLE FORM).

The RIPPLE2 FORM menu appears.

- 2** To adjust the RADIAL modulation press F2 (FORM RADIAL), and to adjust the ANGULAR modulation press F3 (FORM ANGULR), then select F4 (SINE) to F9 (CUBIC) to select the ripple waveform.

*For details of the waveform types and parameter settings, see page 4-95.*

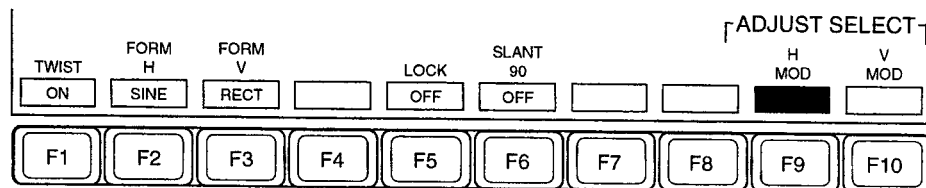
## TWIST Settings

This applies a twisting effect to the image.

### Option

This function requires the BKDM-7031 option.

In group 1 of the NONLINEAR menu, select F9 (TWIST) to display the TWIST menu.



Function key indications in the TWIST menu

The following are some of the operations carried out in this menu.

### Applying the twist effect – F1 (TWIST), F9 (H MOD), and F10 (V MOD)

Use the following procedure.

- 1** Set F1 (TWIST) to “ON”.
- 2** To adjust the horizontal modulation press F9 (H MOD), and to adjust the vertical modulation press F10 (V MOD), then adjust the following parameters.

Knob	Parameter	Setting
1	Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	Mod Offset (when F5 is “ON”)	Set phase offset and direction of the waves (–16.00 to +16.00)
	Mod Speed (when F5 is “OFF”)	Set direction and speed of wave movement (–100.00 to +100.00)

## Nonlinear Effects

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### Selecting the waveform – F2 (FORM H) and F3 (FORM V)

To select the modulation waveform in the horizontal direction, press F2 (FORM H), and to select the modulation waveform in the vertical direction, press F3 (FORM V).

Pressing either F2 or F3 cycles through the following possibilities:

SINE (sine wave) → PARAB (parabola) → TRIANG (triangular wave) → RECT (square wave) → CIRCLE (circle) → CUBIC (cubic polynomial)

### Stopping the waves – F5 (LOCK)

Set F5 (LOCK) to “ON”. Pressing F5 toggles wave motion on and off.

### Rotating the direction of twisting through 90 degrees – F6 (SLANT 90)

Set F6 (SLANT 90) to “ON”.

---

## BROKEN GLASS Settings

This provides the effect of the picture shattering into fragments.

In group 2 of the NONLINEAR menu, press F3 (BROKEN GLASS) to display the BROKEN GLASS menu.

ADJUST SELECT									
BROKEN GLASS		DIREC-TION	PIXEL		PIXEL	TRANS	PART-ITION	POS	START ANGLE
ON		OFF	ON						
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the BROKEN GLASS menu

Except for F3 (DIRECTION), the items shown in this menu, and the function key operations are the same as in the RINGS menu.

*For details of operation other than F3 (DIRECTION) see the section “RINGS Settings” (page 4-101).*

---

### Fixing the direction of scattering – F3 (DIRECTION)

Set F3 (DIRECTION) to “ON”.

The direction of scattering of the fragmented image is fixed by the F10 (START ANGLE) parameter(s).

#### Option

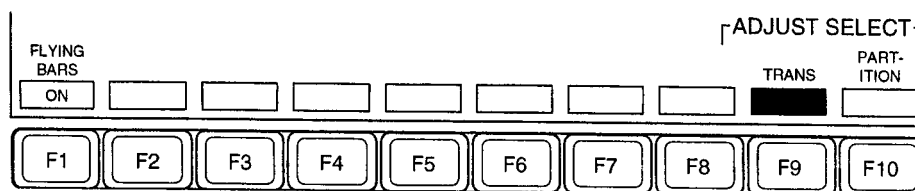
The DIRECTION effect requires the BKDM-7031 option.

---

## FLYING BARS Settings

This splits the picture up, and makes it peel apart in two strips.

In group 2 of the NONLINEAR menu, press F4 (FLYING BARS) to display the FLYING BARS menu.



Function key indications in the FLYING BARS menu

The following are some of the operations carried out in this menu.

### Applying the flying bars effect

Use the following procedure.

- 1 Set F1 (FLYING BARS) to “ON”.
- 2 To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Random	Set degree to which distances moved by different pieces of image are randomized (0.00 to 100.00)
3	Angle	Set direction of movement (–8.00 to +8.00)

(Continued)

## Nonlinear Effects

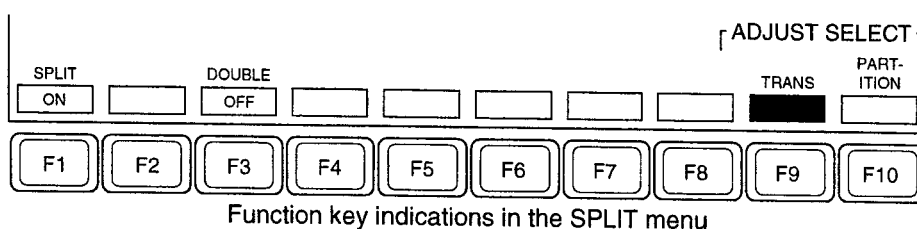
- 3** To adjust the way in which the pieces break up, press F10 (PARTITION), then adjust the following parameters.

Knob	Parameter	Setting
1	Width	Set width of partition (0.00 to 100.00)
2	Random	Set degree to which partition width is random (0.00 to 100.00)
3	Angle	Set direction of partition (-8.00 to +8.00)

## SPLIT Settings

This effect splits the picture up horizontally and vertically.

In group 2 of the NONLINEAR menu, press F5 (SPLIT) to display the SPLIT menu.



The following are some of the operations carried out in this menu.

### Applying the split effect – F1 (SPLIT), F9 (TRANS), and F10 (PARTITION)

Use the following procedure.

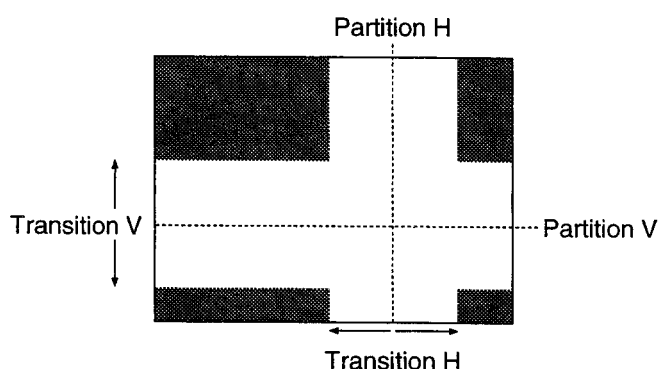
- 1** Set F1 (SPLIT) to “ON”.
- 2** To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	H	Set degree of splitting horizontally (0.00 to 100.00)
2	V	Set degree of splitting vertically (0.00 to 100.00)
3	All	Set degree of splitting horizontally and vertically



- 3** To adjust the positions of the partitions, press F10 (PARTITION), then adjust the following parameters.

Knob	Parameter	Setting
1	H	Set horizontal position of vertical partition (-4.00 to +4.00)
2	V	Set vertical position of horizontal partition (-3.00 to +3.00)



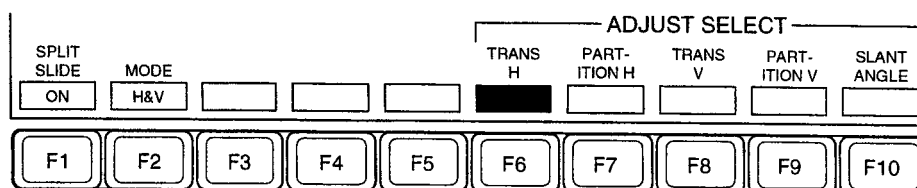
### Filling the split with the original picture – F3 (DOUBLE)

To insert the video image being split also in the opening gap, press F3 (DOUBLE).

## SPLIT SLIDE Settings

This effect breaks the picture into strips moving apart alternately.

In group 2 of the NONLINEAR menu, press F6 (SPLIT SLIDE) to display the SPLIT SLIDE menu.



Function key indications in the SPLIT SLIDE menu

## Nonlinear Effects

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The following are some of the operations carried out in this menu.

### **Toggling the split slide effect on and off – F1 (SPLIT SLIDE)**

Press F1 (SPLIT SLIDE).

When this is set to “ON”, the following settings are enabled.

### **Selecting the split slide mode – F2 (MODE)**

Press F2 (MODE), to select either “H & V” or “SLANT”.

“H & V”: The image is split horizontally or vertically and slid in that direction. In this mode it is also possible to split the image simultaneously both horizontally and vertically.

“SLANT”: The image is split and slid in one specified direction.

### **Adjusting the manner of sliding – F6 (TRANS H) to F10 (SLANT ANGLE)**

- 1** To adjust the nature of the transition in the horizontal direction, press F6 (TRANS H), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Random	Set degree to which distances moved by different pieces of image are randomized (0.00 to 100.00)
3	Skew	Set degree to which slide is skewed (0.00 to 100.00)

- 2** To adjust the partition in the horizontal direction, press F7 (PARTITION H), then adjust the following parameters.

Knob	Parameter	Setting
1	Width	Set width of partition (0.00 to 100.00)
2	Pos	Set position of partition (–5.00 to +5.00)

- 3** When F2 (MODE) is set to “H & V”, press F8 (TRANS V) or F9 (PARTITION V), then adjust the parameters relating to the vertical transition and partition.

The parameter settings are the same as in steps **1** and **2**.

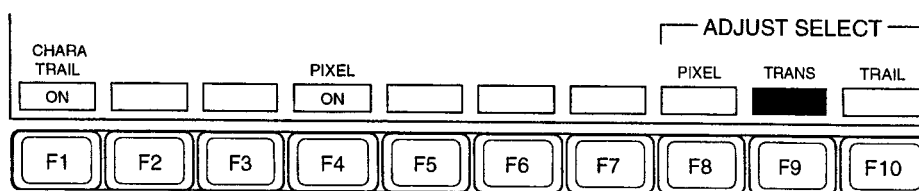
- 4** When F2 (MODE) is set to “SLANT”, press F10 (SLANT ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set angle of the split (–8.00 to +8.00)

## CHARACTER TRAIL Settings

This provides the effect of pulling out a “tail” from a peripheral part of the image.

In group 2 of the NONLINEAR menu, press F7 (CHARA TRAIL) to display the CHARACTER TRAIL menu.



Function key indications in the CHARACTER TRAIL menu

The following are some of the operations carried out in this menu.

### Applying the character trail effect – F1 (CHARA TRAIL), F9 (TRANS), and F10 (TRAIL)

Use the following procedure.

- 1** Set F1 (CHARA TRAIL) to “ON”.
- 2** To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set position of beginning of effect (–8.00 to +8.00)
2	Expn	Set degree of stretching (0.00 to 100.00)
3	Angle	Set angle of inclination of region of effect (–8.00 to +8.00)

(Continued)

## Nonlinear Effects

- 3** To adjust the pulling out of the tail, press F10 (TRAIL), then adjust the following parameter.

Knob	Parameter	Setting
3	Angle	Set direction of tail-pulling (-100 to +100)

### Breaking the image into pixels – F4 (PIXEL) and F8 (PIXEL)

Use the following procedure.

- 1** Set F4 (PIXEL) to “ON”.
- 2** Press F8 (PIXEL), then adjust the following parameters.

Knob	Parameter	Setting
1	Density	Set degree to which image disappears (0.00 to 100.00)
2	Random	Set manner of pulling out tail and amount of stardust (0.00 to 100.00)

#### Option

The PIXEL effect requires the BKDM-7031 option.

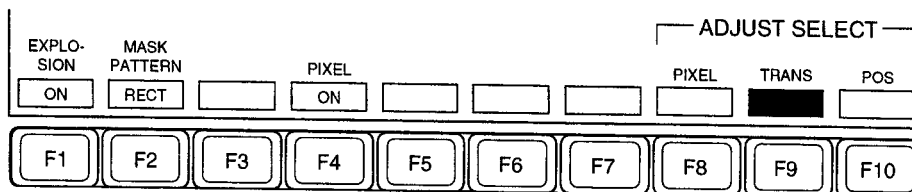
## EXPLOSION Settings

EXPLOSION provides an effect of the image expanding and breaking into pieces.

#### Option

This function requires the BKDM-7031 option.

In group 2 of the NONLINEAR menu, select F8 (EXPLOSION) to display the EXPLOSION menu.



Function key indications in the EXPLOSION menu

The following are some of the operations carried out in this menu.

*For details of the functions provided by F4 (PIXEL) and F8 (PIXEL), see the previous section “CHARACTER TRAIL Settings”.*

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### Applying an explosion effect – F1 (EXPLOSION), F2 (MASK PATTERN), F9 (TRANS), and F10 (POS)

Use the following procedure.

- 1** Set F1 (EXPLOSION) to “ON”.
- 2** Press F2 (MASK PATTERN) to select the shape of the mask pattern.

Pressing F2 cycles through the following possibilities:

CIRCLE (circle) → RECT (rectangle) → STAR (star) → HEART (heart) → ELLPS (ellipse)

- 3** To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set amount of pixel movement (0.00 to 100.00)
2	Curve	Set amount of pixel movement at the periphery of the image (0.00 to 100.00)
3	Spiral (when “CIRCLE” is selected)	Set degree of curvature of path of transition (–100.00 to +100.00)
	Aspect (when other than “CIRCLE” is selected)	Set aspect ratio of mask pattern (–100.00 to +100.00)

- 4** To adjust the position of the center of the mask pattern, press F10 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of pattern (–5.00 to +5.00)
2	Y	Set y-coordinate of center of pattern (–4.00 to +4.00)

## Nonlinear Effects

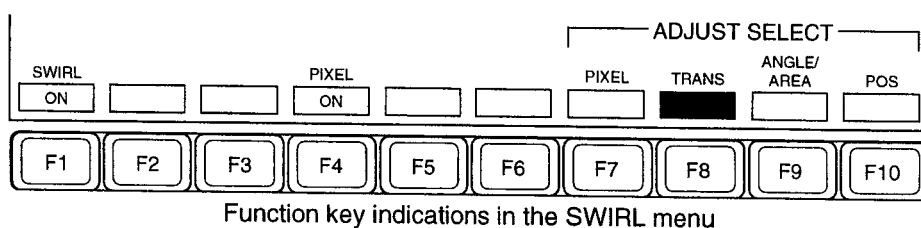
### SWIRL Settings

SWIRL applies a swirling effect to the image.

#### Option

This function requires the BKDM-7031 option.

In group 2 of the NONLINEAR menu, select F9 (SWIRL) to display the SWIRL menu.



The following are some of the operations carried out in this menu.

*For details of the functions provided by F4 (PIXEL) and F7 (PIXEL), see the section “CHARACTER TRAIL Settings” (page 4-111).*

#### Applying a swirl effect – F1 (SWIRL)

Use the following procedure.

- 1 Set F1 (SWIRL) to “ON”.
- 2 To adjust the nature of the transition, press F8 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of winding (0.00 to 100.00)

- 3 To adjust the nature of the swirling, press F9 (ANGLE/AREA), then adjust the following parameters.

Knob	Parameter	Setting
1	Center	Set degree of turning at center (–8.00 to +8.00)
2	Outer	Set degree of turning outside “Area” (–8.00 to +8.00)
3	Area	Set “Area” of swirl (0.00 to 100.00)

- 
- 4** To adjust the position of the center of the swirl, press F10 (POS), then adjust the following parameters.

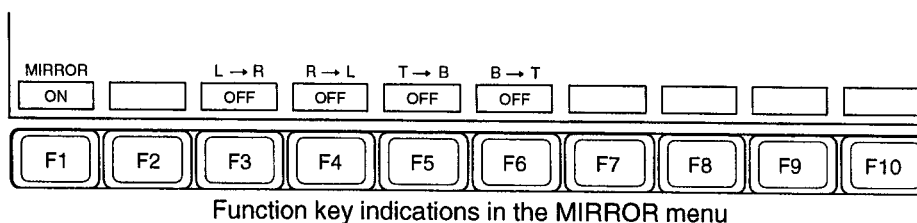
Knob	Parameter	Setting
1	X	Set x-coordinate of center of the swirl (–4.00 to +4.00)
2	Y	Set y-coordinate of center of the swirl (–3.00 to +3.00)

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## MIRROR Settings

This reflects half of the image in a horizontal or vertical mirror.

In group 3 of the NONLINEAR menu, press F3 (MIRROR) to display the MIRROR menu.



The following are some of the operations carried out in this menu.

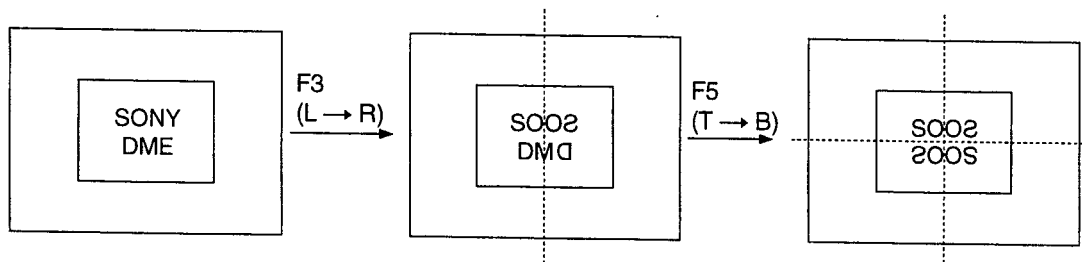
### Applying the mirror effect – F1 (MIRROR)

Use the following procedure.

- 1** Set F1 (MIRROR) to “ON”.
- 2** Select the mirror effect using F3 to F6. Two of these may be on simultaneously.
  - F3 (L → R): reflect left half on right.
  - F4 (R → L): reflect right half on left.
  - F5 (T → B): reflect top half on bottom.
  - F6 (B → T): reflect bottom half on top.

(Continued)

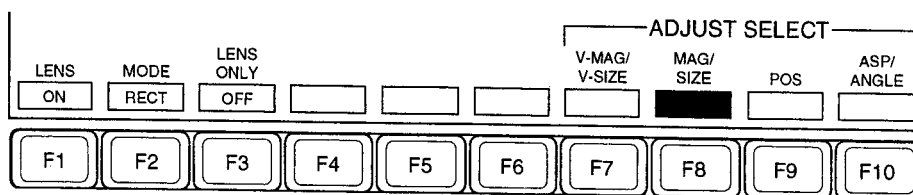
## Nonlinear Effects



## LENS Settings

This provides the effect of seeing part of the image through a lens.

In group 3 of the NONLINEAR menu, press F4 (LENS) to display the LENS menu.



Function key indications in the LENS menu

The following are some of the operations carried out in this menu.

### Applying the lens effect – F1 (LENS), F2 (MODE), F7 (V-MAG/V-SIZE) to F10 (ASP/ANGLE)

Use the following procedure.

- 1** Set F1 (LENS) to "ON".
- 2** Press F2 (MODE) to select the shape of the lens.

Pressing F2 cycles through the following possibilities:

**CIRCLE:** circle  
**RECT:** rectangle  
**STAR:** star  
**HEART:** heart  
**BAR:** strip  
**CROSS:** cross



---

**Option**

Selecting a lens shape other than circular requires the BKDM-7031 option.

- 3** To adjust the magnification and size of the lens, press F8 (MAG/SIZE), then adjust the following parameters.  
When F2 (MODE) is set to "CROSS", these are the settings for the horizontal direction.

Knob	Parameter	Setting
1	Mag	Set magnification of lens (–100.00 to +100.00)
2	Curve	Set curvature (–100.00 to +100.00)
3	Size	Set lens size (0.00 to 100.00)

- 4** When F2 (MODE) is set to "CROSS", press F7 (VMAG/VSIZE), then set the magnification and size in the vertical direction.

The parameter settings are the same as in step **3**.

- 5** To adjust the position of the center of the lens, press F9 (POS), then adjust the following parameters. However, when F2 (MODE) is set to "BAR", only the "X" parameter appears.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of lens (–5.00 to +5.00)
2	Y	Set y-coordinate of center of lens (–4.00 to +4.00)

- 6** To adjust the aspect ratio and inclination angle of the lens, press F10 (ASP/ANGLE), then adjust the following parameters.  
However, when F2 (MODE) is set to "CROSS", these settings do not appear. When F2 (MODE) is set to "BAR", only the "Angle" parameter appears.

Knob	Parameter	Setting
1	Aspect	Set aspect ratio (–100.00 to +100.00)
2	Angle	Set inclination of lens (–8.00 to +8.00)

### **Making only the lens portion visible – F3 (LENS ONLY)**

Set F3 (LENS ONLY) to "ON".

This crops the part of the picture outside the area of the lens.

## Nonlinear Effects

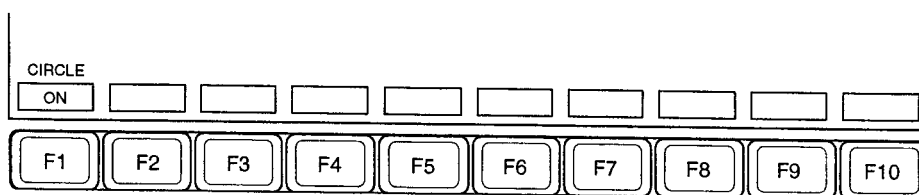
---

### CIRCLE Settings

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This makes the image circular.

In group 3 of the NONLINEAR menu, press F5 (CIRCLE) to display the CIRCLE menu.



Function key indications in the CIRCLE menu

The following are some of the operations carried out in this menu.

#### Applying the circle effect

Use the following procedure.

- 1 Set F1 (CIRCLE) to "ON".
- 2 Adjust the following parameter.

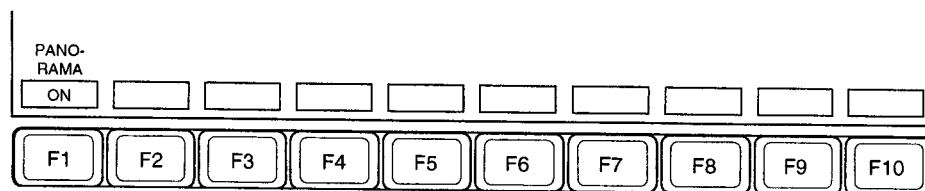
Knob	Parameter	Setting
1	Radius	Set the radius of the circle (0.00 to 100.00)

---

## PANORAMA Settings

This provides an effect of enhanced perspective by curving the upper and lower edges of the image.

In group 3 of the NONLINEAR menu, press F6 (PANORAMA) to display the PANORAMA menu.



Function key indications in the PANORAMA menu

The following are some of the operations carried out in this menu.

### Applying the panorama effect

Use the following procedure.

- 1** Press F1 (PANORAMA).
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	H Curve	Set horizontal curvature (–100.00 to +100.00)
2	V Curve	Set vertical curvature (–100.00 to +100.00)
3	X Pos	Set x-coordinate of center of curvature (–4.00 to +4.00)
4	Y Pos	Set y-coordinate of center of curvature (–3.00 to +3.00)

## Nonlinear Effects

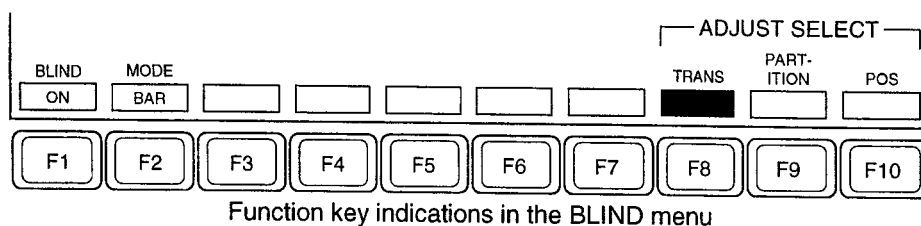
### BLIND Settings

The BLIND effect divides the image into bars or wedges, and rotates the pieces, providing an effect suggestive of the vanes of a blind turning.

#### Option

This function requires the BKDM-7031 option.

In group 3 of the NONLINEAR menu, select F8 (BLIND) to display the BLIND menu.



The following are some of the operations carried out in this menu.

#### Applying the blind effect

Use the following procedure.

- 1** Set F1 (BLIND) to "ON".
- 2** Press F2 (MODE) to select "BAR" or "WEDGE".
- 3** To adjust the nature of the transition, press F8 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Rot	Set number of rotations of pieces (-8.00 to +8.00)
2	Pers	Set degree of perspective (0.00 to +100.00)

- 4** To adjust the way in which the pieces break up, press F9 (PARTITION), then adjust the following parameters.

**When you selected “BAR” in step 2:**

Knob	Parameter	Setting
1	Width	Set width of individual bars (0.00 to 100.00)
2	Pos	Set position of divisions (–5.00 to +5.00)
3	Angle	Set direction of divisions (–8.00 to +8.00)

**When you selected “WEDGE” in step 2:**

Knob	Parameter	Setting
1	No.	Set width of individual wedges (0.00 to 100.00)
2	Phase	Set position of divisions (–8.00 to +8.00)

- 5** When you selected “WEDGE” in step 2, press F10 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of rotation (–5.00 to +5.00)
2	Y	Set y-coordinate of center of rotation (–4.00 to +4.00)

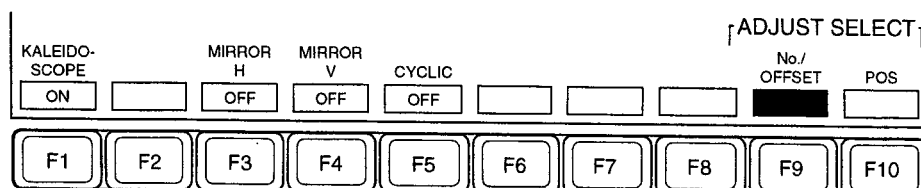
## KALEIDOSCOPE Settings

The KALEIDOSCOPE effect provides a range of kaleidoscope-like effects on the image.

### Option

This function requires the BKDM-7031 option.

In group 3 of the NONLINEAR menu, select F9 (KALEIDOSCOPE) to display the KALEIDOSCOPE menu.



Function key indications in the KALEIDOSCOPE menu

## Nonlinear Effects

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The following are some of the operations carried out in this menu.

### Applying the kaleidoscope effect – F1 (KALEIDOSCOPE), F9 (No./OFFSET)

Use the following procedure.

- 1** Set F1 (KALEIDOSCOPE) to “ON”.
- 2** Press F9 (No./OFFSET), then adjust the following parameters.

Knob	Parameter	Setting
1	No.	Set number of pieces (0.00 to 100.00)
2	Phase	Set angle of divisions (–8.00 to +8.00)
3	H Offset	Set horizontal offset (–4.00 to +4.00)
4	V Offset	Set vertical offset (–3.00 to +3.00)

### Making mirror reflections of the kaleidoscope image – F3 (MIRROR H), F4 (MIRROR V), and F10 (POS)

Use the following procedure.

- 1** For a horizontal reflection set F3 (MIRROR H) to “ON”.
- 2** For a vertical reflection set F4 (MIRROR V) to “ON”.
- 3** Press F10 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of reflection position (0.00 to 4.00)
2	Y	Set y-coordinate of reflection position (0.00 to 3.00)

### Cyclically repeating original images and mirror images – F5 (CYCLIC)

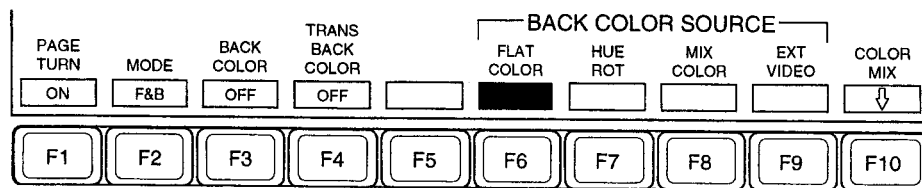
Set F5 (CYCLIC) to “ON”.

---

## PAGE TURN Settings

This provides the effect of a page turning.

In group 4 of the NONLINEAR menu, press F3 (PAGE TURN) to display the PAGE TURN menu.



Function key indications in the PAGE TURN menu

### Option

- F3 (BACK COLOR), F6 (FLAT COLOR) to F10 (COLOR MIX) are only effective when the BKDM-3050 option is installed.
- F4 (TRANS BACK COLOR) and F8 (MIX COLOR) further require the BKDM-3040 option.
- F9 (EXT VIDEO) is only effective in component mode.

The following are some of the operations carried out in this menu.

### Applying the pageturn effect – F1 (PAGE TURN)

Use the following procedure.

- 1** Set F1 (PAGE TURN) to “ON”.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	Radius	Set radius of turning portion (0.00 to 100.00)
2	Offset	Set amount of turning (–100.00 to +100.00)
3	Angle	Set turning angle (–8.00 to +8.00)

## Nonlinear Effects

---

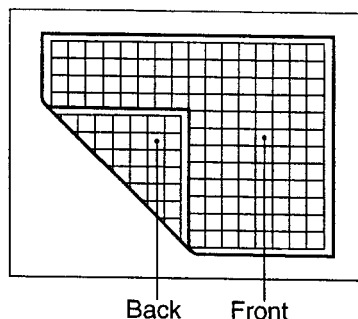
### Selecting the front or back of the turning page – F2 (MODE)

Press F2 (MODE), to select one of the following.

“F & B”: Output both the front and the back of the page.

“FRONT”: Output the front of the page only.

“BACK”: Output the back of the page only.



### Selecting the signal to be inserted in the back of the page – F3 (BACK COLOR) and F6 (FLAT COLOR) to F10 (COLOR MIX)

When “MODE” is set to “F & B” or “BACK”, you can insert a different signal in the back side (see illustration above).

- 1 Set F3 (BACK COLOR) to “ON”.
- 2 Press any of F6 (FLAT COLOR) to F9 (EXT VIDEO), to select the signal to be inserted in the back of the page.

*The significance of the parameters and their setting ranges are the same as for a background. For details, see the section “BKGD Settings” (page 4-8).*

### Deforming the back of the turning page – F4 (TRANS BACK COLOR)

When F2 (MODE) is set to “F & B” or “BACK”, by setting F4 (TRANS BACK COLOR) to “ON”, you can deform the video image forming the back of the page in line with the curved portion of the page turn. Only the image provided by selecting F8 (MIX COLOR) or F9 (EXT VIDEO) can be deformed in this way.



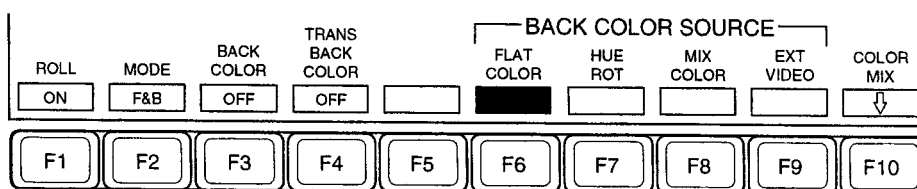
### Notes

- When F4 (TRANS BACK COLOR) is set to “ON”, the WIPE CROP, MASK, SPOTLIGHTING, and TARGET SPOTLIGHTING effects are all automatically turned off.
- The image on the back of the page is inverted. In order to make it not inverted, set the INPUT INVERT function (*see page 5-10*) to “ON”.
- It is not possible to use the functions in the PICTURE MODIFY menu (*page 4-54*) or VIDEO MODIFY menu (*page 4-75*) to modify the back of the page.
- It is not possible to apply a border to the back of the page.

## ROLL Settings

This provides the effect of rolling the image up like a scroll.

In group 4 of the NONLINEAR menu, press F4 (ROLL) to display the ROLL menu.



Function key indications in the ROLL menu

### Option

- F3 (BACK COLOR), F6 (FLAT COLOR) to F10 (COLOR MIX) are only effective when the BKDM-3050 option is installed.
- F4 (TRANS BACK COLOR) and F8 (MIX COLOR) further require the BKDM-3040 option.
- F9 (EXT VIDEO) is only effective in component mode.

The items shown in this menu, and the function key operations are the same as in the PAGE TURN menu.

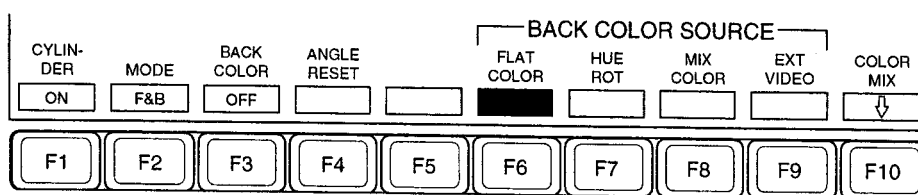
*For details see the section “PAGE TURN Settings” (page 4-123).*

## Nonlinear Effects

### CYLINDER Settings

This provides the effect of wrapping the image around a cylinder.

In group 4 of the NONLINEAR menu, press F5 (CYLINDER) to display the CYLINDER menu.



Function key indications in the CYLINDER menu

#### Option

- F3 (BACK COLOR), F6 (FLAT COLOR) to F10 (COLOR MIX) are only effective when the BKDM-3050 option is installed.
- F7 (MIX COLOR) further requires the BKDM-3040 option.
- F8 (EXT VIDEO) is only effective in component mode.

The following are some of the operations carried out in this menu.

#### Applying the cylinder effect – F1 (CYLINDER)

Use the following procedure.

- 1** Set F1 (CYLINDER) to “ON”.
- 2** Adjust the following parameter.

Knob	Parameter	Setting
1	Radius	Set cylinder radius (0.00 to 100.00)
2	Min R	Set minimum radius of cylinder (0.00 to 100.00)
3	Offset	Set horizontal position at which image is wrapped around (-100.00 to +100.00)

---

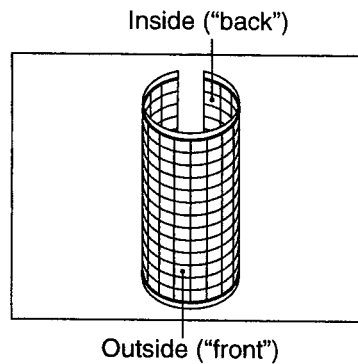
### Selecting the outside or inside of the cylinder – F2 (MODE)

Press F2 (MODE), to select one of the following.

**“F & B”**: Output both the outside and the inside of the cylinder.

**“FRONT”**: Output the outside of the cylinder only.

**“BACK”**: Output the inside of the cylinder only.



#### Note

When rotating a cylinder and showing the top and bottom open ends on the monitor, there are restrictions on the rotation angle.

### Ensuring smooth unrolling of a cylinder – F4 (ANGLE RESET)

When unrolling a cylinder, with a rotation of the image applied about the x- or y-axis, computational limitations of the processor may cause a discontinuity as the radius of curvature increases, with the image suddenly jumping in the z-direction to the completely flat state. This problem can be avoided by using F4 (ANGLE RESET).

First, with the cylinder unrolled to just before the state where the discontinuity occurs, press F4 (ANGLE RESET), and create a key frame. Then increase the radius again, and repeat the procedure as required. This makes it possible to obtain a completely smooth unrolling effect.

Nonlinear Effects

Selecting the signal to be inserted in the “back” (i.e. inside) of the cylinder – F3 (BACK COLOR), F6 (FLAT COLOR) to F9 (EXT VIDEO)

When “MODE” is set to “F & B” or “BACK”, you can insert a different signal in the “back” (i.e. inside) of the cylinder (see illustration above).

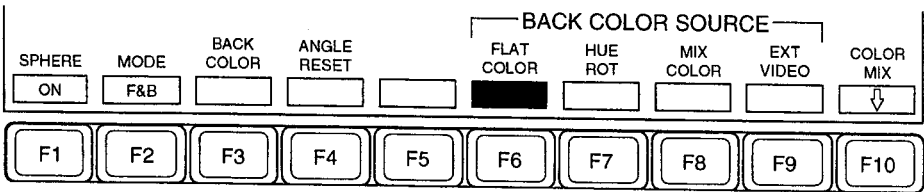
- 1 Set F3 (BACK COLOR) to “ON”.
- 2 Press any of F6 (FLAT COLOR) to F9 (EXT VIDEO), to select the signal to be inserted in the back of the page.

For details of the settings, see the section “BKGD Settings” (page 4-8).

SPHERE Settings

This provides the effect of wrapping the image around a sphere.

In group 4 of the NONLINEAR menu, press F6 (SPHERE) to display the SPHERE menu.



Function key indications in the SPHERE menu

Option

- F3 (BACK COLOR), F6 (FLAT COLOR) to F10 (COLOR MIX) are only effective when the BKDM-3050 option is installed.
- F8 (MIX COLOR) further requires the BKDM-3040 option.
- F9 (EXT VIDEO) is only effective in component mode.

The items shown in this menu, and the function key operations are the same as in the CYLINDER menu.

For details see the section “CYLINDER Settings” (page 4-126).

Note

When rotating a sphere, it is not possible to show the points corresponding to the poles.

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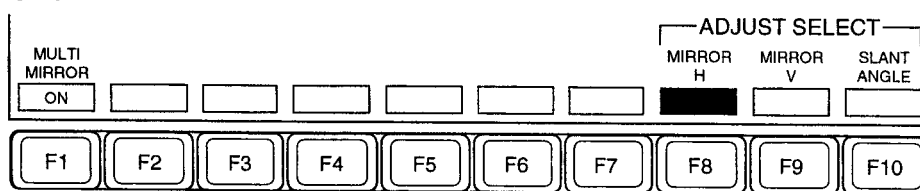
## MULTI MIRROR Settings

MULTI MIRROR provides the effect of reflecting the image in a pair of parallel mirrors (either horizontal or vertical or both) at right angles to the plane of the image, thus giving a repeated effect of alternately reflected sections of the image.

**Option**

This function requires the BKDM-7031 option.

In group 4 of the NONLINEAR menu, select F8 (MULTI MIRROR) to display the MULTI MIRROR menu.



Function key indications in the MULTI MIRROR menu

The following are some of the operations carried out in this menu.

### Applying the “multi-mirror” effect

Use the following procedure.

- 1** Set F1 (MULTI MIRROR) to “ON”.
- 2** To adjust the mirrors horizontally, press F8 (MIRROR H), then adjust the following parameters.

Knob	Parameter	Setting
1	Interval	Set spacing between the two mirrors (width of strip) (0.00 to 10.00)
2	Pos	Set center position of the unreflected image (–4.00 to +4.00)
3	Offset	Set offset of the original image with mirrors held stationary (–4.00 to +4.00)

- 3** To adjust the mirrors vertically, press F9 (MIRROR V), then adjust the parameters.

The parameter settings are the same as in step 2.

(Continued)

## Nonlinear Effects

- 4** Press F10 (SLANT ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set mirror direction (–8.00 to +8.00)

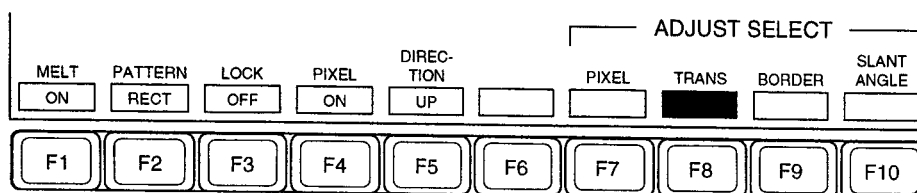
## MELT Settings

MELT provides an effect on the image as though part of it were melting away.

### Option

This function requires the BKDM-7031 option.

In group 4 of the NONLINEAR menu, select F9 (MELT) to display the MELT menu.



Function key indications in the MELT menu

The following are some of the operations carried out in this menu.

### Applying the melting effect – F1 (MELT), F3 (LOCK), and F8 (TRANS) to F10 (SLANT ANGLE)

Use the following procedure.

- 1** Set F1 (MELT) to “ON”.
- 2** To adjust the nature of the transition, press F8 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Curve	Set degree of stretching the image (0.00 to 100.00)
3	Random	Set degree to which the melted portion is jagged (0.00 to 100.00)

- 
- 3** To fix the waves in the melting portion, set F3 (LOCK) to “ON”, and to let the waves move set F3 (LOCK) to “OFF”.
- 4** To adjust the waves in the melting portion, press F9 (BORDER), then adjust the following parameters.

Knob	Parameter	Setting
1	Amp	Set amplitude of the waves (0.00 to 100.00)
2	H Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	Offset (when F3 is “ON”)	Set phase offset of the waves (–16.00 to +16.00)
	Speed (when F3 is “OFF”)	Set direction and speed of wave movement (–100.00 to +100.00)

- 5** To adjust the inclination of the melting portion, press F10 (SLANT ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set boundary direction (–100.00 to +100.00)

### **Adjusting the shape of the portion beginning to melt – F2 (PATTERN)**

Press F2 (PATTERN) to select the waveform.

Pressing F2 cycles through the following possibilities:

SINE (sine wave) → PARAB (parabola) → TRIANG (triangular wave) →  
RECT (square wave) → CIRCLE (circle) → CUBIC (cubic polynomial) →  
MT1 → MT2

## Nonlinear Effects

---

### Breaking the melting part of the image into pixels – F4 (PIXEL) and F7 (PIXEL)

Use the following procedure.

- 1** Set F4 (PIXEL) to “ON”.
- 2** Press F7 (PIXEL), then adjust the following parameters.

Knob	Parameter	Setting
1	Density	Set degree to which image disappears (0.00 to 100.00)
2	Random	Set degree to which pixel position becomes more randomized further from the center (0.00 to 100.00)

### Switching the melting direction – F5 (DIRECTION)

Press F5 (DIRECTION). Selecting “UP” makes the melting occur upwards, and selecting “DOWN” makes the melting occur downwards.



# Graphics Display

---

This function provides graphics screens which display wire frames and coordinate axes.

Superimposing these graphics screens on an effect being created makes it easier to check on positions in the three-dimensional video space.

## Option

The graphics functions require the BKDM-3040 and BKDM-7060 (BKDM-3060 for DME-3000) options.

## Note

The graphics display effects cannot be included in key frame effects.

---

## Effect Selection

### Top menu selection

The graphics display effects are selected from the GRAPHIC menu.

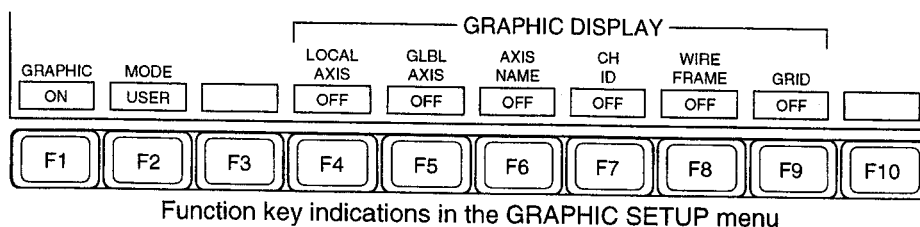
In the GRAPHIC menu, press the required item selection button as shown in the following table to select the effect.

Item selection button	Function	See page
1 (GRAPHIC SETUP)	Select the graphics effects to be displayed.	4-134
2 (GRAPHIC CONTROL)	Settings for selection of reduced graphics displays, automatic suppression of graphics displays when an effect is executed, etc.	4-136

## Graphics Display

### GRAPHIC SETUP Settings

In the GRAPHIC menu, select item 1 (GRAPHIC SETUP) to display the GRAPHIC SETUP menu.



The following are some of the operations carried out in this menu.

#### **Toggling the graphics display on and off – F1 (GRAPHIC)**

Press F1 (GRAPHIC).

When this is set to “ON”, the following settings for F2 to F9 are enabled.

#### **Switching between the default settings and user settings for the graphics display – F2 (MODE)**

Press F2 (MODE).

Pressing F2 toggles between “DEFAULT” and “USER” (for user-defined) settings. When “DEFAULT” is selected, the graphics displays which appear are those corresponding to setting F4 (LOCAL AXIS), F6 (AXIS NAME) and F7 (CH ID) to “ON”. To make your own selection, select “USER”.

#### **Displaying the local coordinate axes – F4 (LOCAL AXIS)**

Set F4 (LOCAL AXIS) to “ON”.

For each channel, this displays three-dimensionally the coordinate axes (x, y, z) along which the wire frame can be moved and about which it can be rotated.

In normal video modifying operations the wire frame and coordinate axes all move in unison. However, pressing the AXIS LOC button in the DME control panel and moving the track ball and Z-ring allows you to move the coordinate axes alone.

---

### Displaying the global coordinate axes – F5 (GLBL AXIS)

Set F5 (GLBL AXIS) to “ON”.

This displays the global axes.

When the combiner option is used to combine a number of DME channels, the global coordinate axes can be used to move and rotate the combined picture along them and about them.

### Labeling the axes – F6 (AXIS NAME)

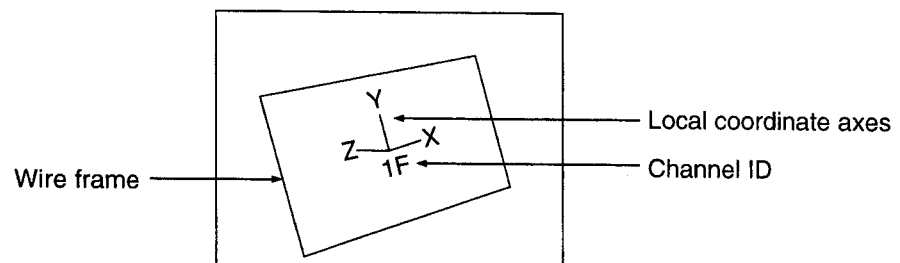
Set F6 (AXIS NAME) to “ON”.

This attaches labels “X”, “Y”, and “Z” to the corresponding axes.

### Displaying the channel ID – F7 (CH ID)

Set F7 (CH ID) to “ON”.

This displays a number to identify the DME channel for which the wire frame (or other graphics element) is currently displayed. This number is followed by a letter “F” or “B” to indicate which side of the wire frame is actually displayed: the front side or back side.



Wire frame, local coordinate axes, and channel ID

### Displaying a wire frame – F8 (WIRE FRAME)

Set F8 (WIRE FRAME) to “ON”.

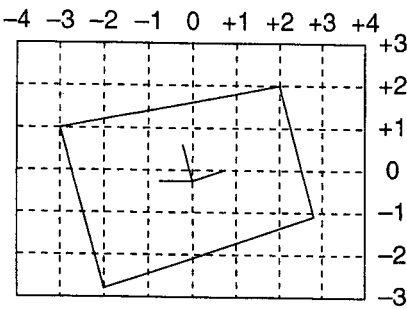
This displays a frame which shows the current position and size of an image. In video modifying operations such as translation and rotation, the image and wire frame move in unison. In non-linear effects, only the image is transformed.

# Graphics Display

## Displaying a grid – F9 (GRID)

Set F9 (GRID) to “ON”.

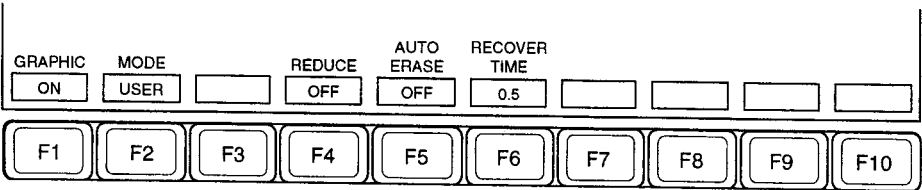
This displays a grid pattern which divides the whole monitor screen area into eight units horizontally and six units vertically.



Grid

# GRAPHIC CONTROL Settings

In the GRAPHIC menu, select item 2 (GRAPHIC CONTROL) to display the GRAPHIC CONTROL menu.



Function key indications in the GRAPHIC CONTROL menu

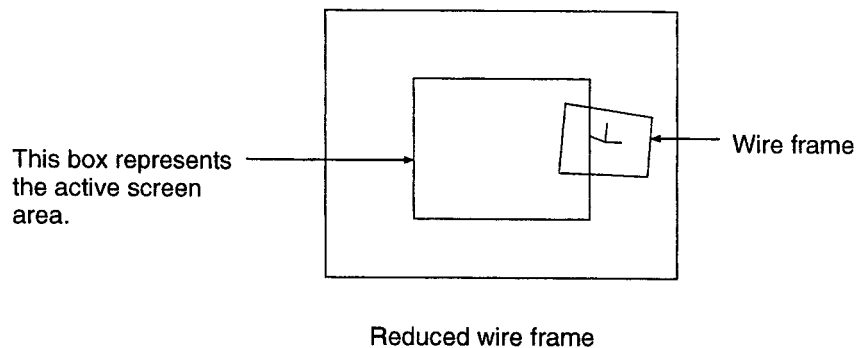
The following are some of the operations carried out in this menu.

*For details of the function of F1 (GRAPHIC) and F2 (MODE), see the section “GRAPHIC SETUP Settings” (page 4-134).*

---

### Displaying a reduced graphics display (reduced wire frame) – F4 (REDUCE)

When GRAPHIC MODE is set to “USER”, this feature provides a reduced display of the graphics screen, which allows you to see even those portions of the wire frame overflowing the active, or normal viewing, screen area. Thus you can check the current position of the wire frame (and therefore that of the whole image), relative to the active screen area, which will be indicated by a box on a reduced scale.



You can locate the image more accurately by displaying a grid pattern over the active screen area.

Use the following procedure.

- 1** Set F4 (REDUCE) to “ON”.
- 2** Adjust the following parameter.

Knob	Parameter	Setting
1	Size	Set the reduction rate (0.00 to 100.00)

## Graphics Display

---

### **Automatically suppressing graphics displays when an effect is executed (the auto erase function) – F5 (AUTO ERASE)**

Set F5 (AUTO ERASE) to “ON”.

If you execute an effect after making graphics display settings, the graphics display automatically disappears. You can only use this function, however, when the effect is executed by the following methods:

- Pressing the RUN button in the key frame operation section
- A “Run” mode trigger from a GPI input
- Reception of a PLAY command from an editor

After executing the effect, the graphics display is automatically restored after a time determined by the setting of F6 (RECOVER TIME).

### **Setting the time after which a graphics display which had been deleted by the auto erase function is automatically restored after executing an effect – F6 (RECOVER TIME)**

Press F6 (RECOVER TIME).

Pressing F6 cycles through the settings of the time at which the graphics display is restored after executing an effect, in the sequence: 0.5, 3 and 5 seconds.

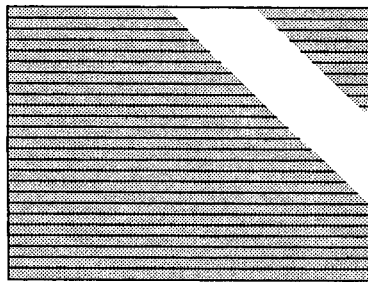
When F5 (AUTO ERASE) is “OFF”, this setting has no effect.

# Lighting

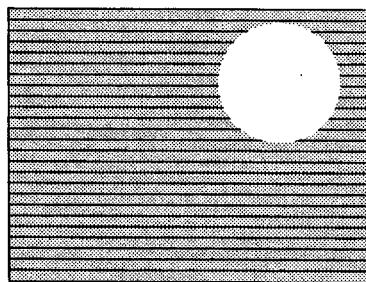
The lighting functions provide the effect of lighting on an image. With the DME-3000/7000, you can carry out the following lighting effects.

## Lighting:

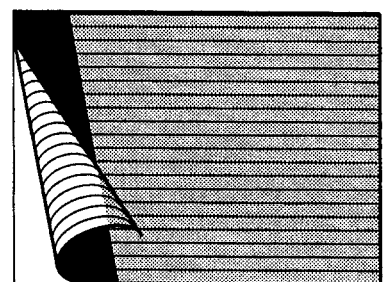
On an image subjected to three-dimensional transformation, there are three lighting effects: PLANE (overall reflection), BAR (strip reflection), and CIRCLE (circular reflection). For an image subjected to a nonlinear transformation, there are two lighting effects: PLANE and PRESET, where the PRESET effect is a pattern specific to the particular nonlinear effect.



BAR



CIRCLE



PRESET (for PAGE TURN)

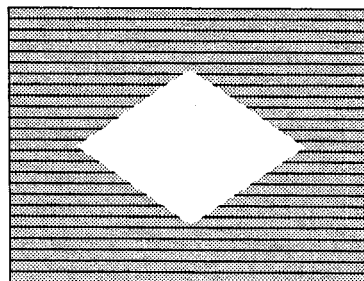
(The examples in the figures above show the lighting at maximum intensity. Reducing the intensity makes the image visible under the lighting.)

### Option

- This function requires the BKDM-3050 option.
- Selecting “CIRCLE” further requires the BKDM-3030 option.

## Spotlighting:

This uses a wipe pattern to provide a spotlight effect on an image.



Spotlighting (using pattern 23)

### Option

The spotlighting function requires the BKDM-3040 option.

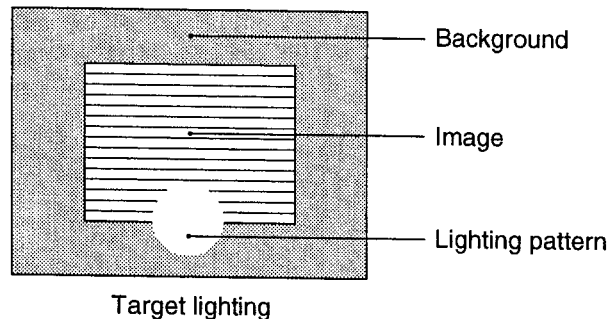
## Lighting

---

(The example in the figures above shows the lighting at maximum intensity. Reducing the intensity makes the image visible under the lighting.)

### **Target lighting:**

This effect provides lighting which impinges on both the image and the background.



#### **Option**

- The target lighting function requires the BKDM-7060 option.

#### **Note**

The target lighting function is not available on the DME-3000.

### **Target spotlighting:**

This uses a wipe pattern to apply the target lighting effect.

#### **Option**

The target spotlighting function requires the BKDM-3040 option.

#### **Note**

It is not possible to use the spotlighting and target spotlighting functions simultaneously. Turning one of them on automatically turns the other off.



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## Effect Selection

### Top menu selection

The lighting effects are selected from the LIGHT EFFECT menu.

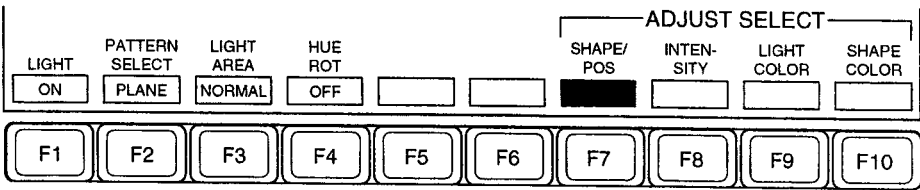
In the LIGHT EFFECT menu, press the required item selection button as shown in the following table to select the effect.

Item selection button	Function	See page
1 (LIGHTING)	Make settings for the lighting effect.	4-141
2 (SPOTLIGHT)	Make settings for the spotlighting effect.	4-148
3 (TARGET LIGHT)	Make settings for the target lighting effect.	4-152
4 (TARGET SPOT)	Make settings for the target spotlighting effect.	4-155

---

## LIGHTING Settings

In the LIGHT EFFECT menu, select item 1 (LIGHTING) to display the LIGHTING menu.



Function key indications in the LIGHTING menu

The following are some of the operations carried out in this menu.

### Toggling the lighting on and off – F1 (LIGHT)

Press F1 (LIGHT).

When this is set to “ON”, the lighting settings are enabled.

## Lighting

---

### Selecting the lighting pattern – F2 (PATTERN SELECT)

Press F2 (PATTERN SELECT).

Pressing F2 cycles through the settings for the lighting pattern as follows.

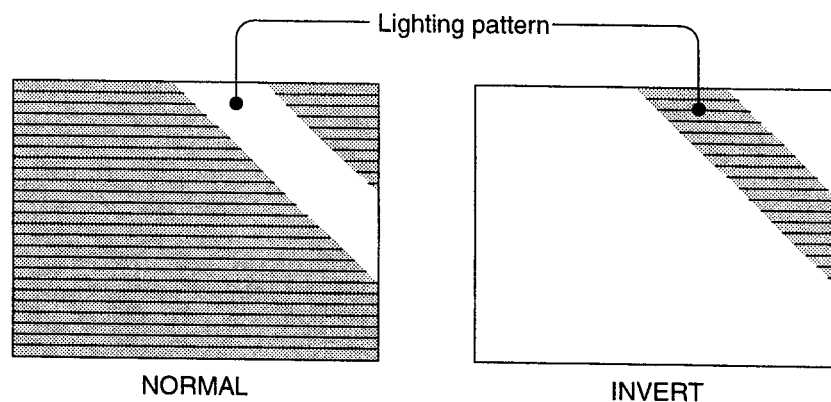
- When no BKDM-3030 option is fitted:  
PLANE → BAR
- When the BKDM-3030 option is fitted:  
When a linear effect is selected: PLANE → BAR → CIRCLE  
When a nonlinear effect is selected: PLANE → PRESET

### Inverting the lighting area – F3 (LIGHT AREA)

Press F3 (LIGHT AREA).

Pressing F3 toggles between the “NORMAL” and “INVERT” settings.

When “INVERT” is selected, the sense of the lighting pattern is reversed, so that the area outside the lighting pattern is illuminated and the area inside the lighting pattern is not illuminated.



### Selecting lighting with a changing color – F4 (HUE ROT)

It is possible to provide continuously varying colors for the light falling on the “Light” region (highlights) and the “Shade” region (*see page 4-147*). Set F4 (HUE ROT) to “ON”.

---

### Settings when the PLANE lighting pattern is selected

When F2 (PATTERN SELECT) is set to "PLANE", use the following procedure to make the settings.

- 1 To adjust the intensity of the light, press F8 (INTENSITY), then adjust the following parameter.

Knob	Parameter	Setting
1	Light	Set intensity of light (0.00 to 100.00)

- 2 To adjust the color of the light, press F9 (LIGHT COLOR), then adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue (when F4 is "OFF")	Set hue (0.00 to 359.99)
	Speed (when F4 is "ON") V	Set rate of change of hue per frame (–12.00 to +12.00)

### Settings when the BAR lighting pattern is selected

When F2 (PATTERN SELECT) is set to "BAR", use the following procedure to make the settings.

- 1 To select the strip shape, press F7 (SHAPE/POS), then adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of the pattern (0.00 to 100.00)
2	Soft	Set the degree of softness of the pattern edge (0.00 to 100.00)
3	Offset	Set offset (parallel displacement) of the pattern position (–10.00 to +10.00)
4	Angle	Set direction and angle through which pattern is rotated (–8.00 to +8.00)

(Continued)

## Lighting

---

- 2** To adjust the intensity of the light, press F8 (INTENSITY), then adjust the following parameters.

Knob	Parameter	Setting
1	Light	Set intensity of "Light" region (highlights) (0.00 to 100.00)
2	Ambt	Set intensity of "Ambient" region (0.00 to 100.00)

- 3** To adjust the color of the light press F9 (LIGHT COLOR), then adjust the parameters.

*For details of the parameters, see step 2 in the previous item "Settings when the PLANE lighting pattern is selected".*

### Settings when the CIRCLE lighting pattern is selected

When F2 (PATTERN SELECT) is set to "CIRCLE", use the following procedure to make the settings.

- 1** To select the circle, press F7 (SHAPE/POS), then adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of the pattern (0.00 to 100.00)
2	Soft	Set the degree of softness of the pattern edge (0.00 to 100.00)
3	X	Set x-coordinate of pattern center (–8.00 to +8.00)
4	Y	Set y-coordinate of pattern center (–8.00 to +8.00)

- 2** To adjust the intensity of the light, press F8 (INTENSITY), then adjust the parameters.

*For more details of the parameters, see step 2 in the item "Settings when the BAR lighting pattern is selected" above.*

- 3** To adjust the color of the light press F9 (LIGHT COLOR), then adjust the parameters.

*For more details of the parameters, see step 2 in the item "Settings when the PLANE lighting pattern is selected" (on previous page).*

---

### Settings when the PRESET lighting pattern is selected (for cases other than “overlap nonlinear effects”)

When F2 (PATTERN SELECT) is set to “PRESET”, use the following procedure to make the settings.

*For the settings for PAGE TURN and other “overlap nonlinear effects” (page 4-90), see the next item.*

- 1** To make the settings relating to the pattern, press F7 (SHAPE/POS), then adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of the pattern (0.00 to 100.00)
2	Soft	Set the degree of softness of the pattern edge (0.00 to 100.00)
3	Offset	Set offset (parallel displacement) of the pattern position (–100.00 to +100.00)
4	Angle <sup>a)</sup>	Set direction and angle through which pattern is rotated (–8.00 to +8.00)

<sup>a)</sup> This only appears for MIRROR and SPLIT.

- 2** To adjust the intensity of the light, press F8 (INTENSITY), then adjust the parameters.

*For details of the parameters, see step 2 in the item “Settings when the BAR lighting pattern is selected” (on previous page).*

- 3** To adjust the color of the light press F9 (LIGHT COLOR), then adjust the parameters.

*For details of the parameters, see step 2 in the item “Settings when the PLANE lighting pattern is selected” (page 4-143).*

### Settings when the PRESET lighting pattern is selected (for “overlap nonlinear effects”)

For PAGE TURN and other “overlap nonlinear effects”, when F2 (PATTERN SELECT) is set to “PRESET”, use the following procedure to make the settings.

- 1 To make the settings relating to the pattern, press F7 (SHAPE/POS), then adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of the pattern (0.00 to 100.00)
2	Soft	Set the degree of softness of the pattern edge (0.00 to 100.00)
3	Offset	Set offset (parallel displacement) of the pattern position (-100.00 to +100.00)

- 2 To adjust the intensity of the light, press F8 (INTENSITY), then adjust the following parameters.

Knob	Parameter	Setting
1	Light	Set intensity of “Light” region (highlights) (0.00 to 100.00)
2	Ambt	Set intensity of “Ambient” region (0.00 to 100.00)
3	Shade	Set intensity of “Shade” region (0.00 to 100.00)

*For a description of the significance of the different regions, see the figure on next page.*

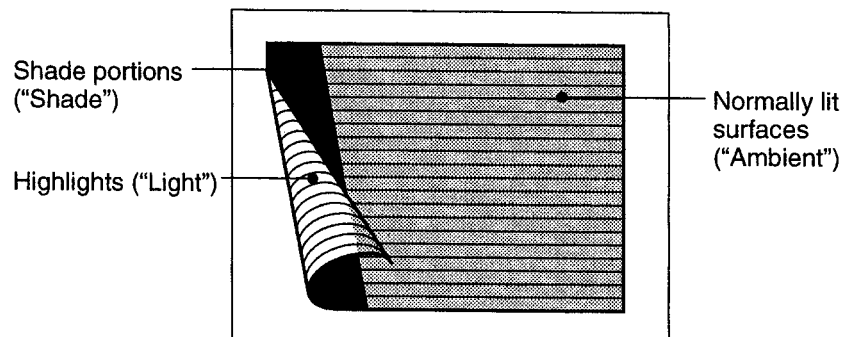
- 3 To adjust the color of the light on the “Light” region, press F9 (LIGHT COLOR), then adjust the parameters. To adjust the color of the light on the “Shade” region, press F10 (SHADE COLOR), then adjust the parameters.

*For details of the parameters in each case, see step 2 in the item “Settings when the PLANE lighting pattern is selected” (page 4-143).*

---

### The three regions for which the light intensity can be set

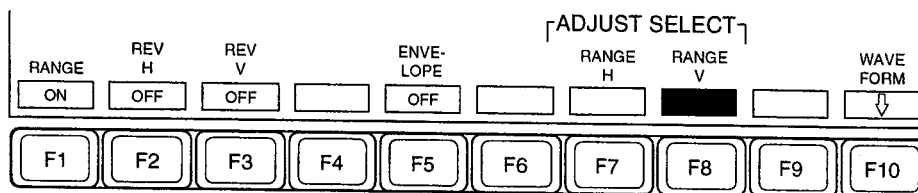
- “Light” region: the highlights on which the light impinges.
- “Ambient” region: the remainder of the uniformly illuminated surface around the highlights.
- “Shade” region: the region in shade.



The three regions for which the light intensity can be set

### SPOTLIGHTING Settings

In the LIGHT EFFECT menu, select item 2 (SPOTLIGHTING) to display the SPOTLIGHTING menu.



Function key indications in the SPOTLIGHTING menu

The following are some of the operations carried out in this menu.

#### **Toggling the lighting on and off – F1 (SPOTLIGHT)**

Press F1 (SPOTLIGHT).

When this is set to “ON”, the spotlight settings are enabled.

#### **Selecting the manner of combination - F2 (MIX MODE)**

Press F2 (MIX MODE) to toggle the setting.

**ADD:** The light impinges strongly.

**MIX:** The light impinges softly.

#### **Selecting the main spotlight pattern**

Press F3 (PATTERN), then turn the knob to select the pattern.

This operation applies only to the main spotlight pattern.

*For details of the pattern numbers you can select, see step 4 of the section “Mixing spotlight patterns (main and subsidiary) (on next page).”*

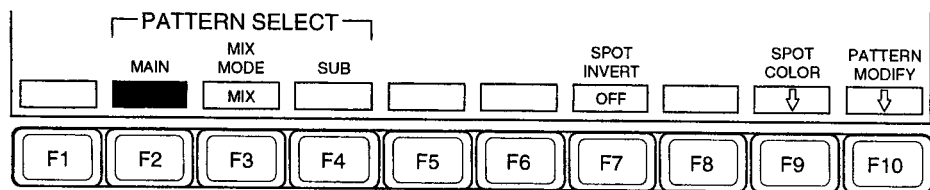


## Mixing spotlight patterns (main and subsidiary) – F10 (SPOT PATTERN)

Use the following procedure.

- 1 Press F10 (SPOT PATTERN),

The SPOTLIGHT PATTERN menu appears.



Function key indications in the SPOTLIGHT PATTERN menu

- 2 Press F3 (MIX MODE), to select whether or not to use a combination of patterns.

**OFF:** Use a single (“main”) wipe pattern.

**MIX:** Combine two patterns (main and subsidiary) with a mix.

**NAM:** Combine two patterns (main and subsidiary) with a non-additive mix.

- 3 If you selected “MIX” or “NAM” in step 2, adjust the following parameter.

Knob	Parameter	Setting
1	Ratio	Set mix amount (0.00 to 100.00)

- 4 Press F2 (MAIN), then use the knobs to select the wipe pattern number.

Knob	Parameter	Setting
1	Pattern No.	Main pattern number (1, 17, 18, 21, 22, 23, 24, 26, 27, 48 <sup>a)</sup> , 49 <sup>a)</sup> , and 304

a) If you select 48 or 49, the following further selections are necessary.

For “MIX” or “NAM” the patterns you can select are: 21, 23, 24, 26, 27, 48, and 49.

**If you selected 48 (“MORE”) with knob 1:**

Knob	Parameter	Setting
4	Pattern	Select “MORE” pattern number (1 to 16)

## Lighting

If you selected 49 (“POLY”) with knob 1:

Knob	Parameter	Setting
3	Polygon	Set number of sides of polygon (3 to 15)
4	Star	Set degree to which vertices stick out (0.00 to 100.00)

**5** If you selected “MIX” or “NAM” in step 2, press F4 (SUB), then use the knobs to select the wipe pattern number.

Knob	Parameter	Setting
1	Pattern No.	Subsidiary pattern number (21, 22, 23, 24, 26, 27, and 304)

### Setting the spotlight pattern position and size – F4 (POS SIZE)

Press F4 (POS SIZE), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center position (–8.00 to +8.00)
2	Y	Set y-coordinate of center position (–6.00 to +6.00)
3	Size	Set the pattern size (0.00 to 100.00)

### Setting the spotlight intensity, pattern rotation, and other parameters - F5 (INTENS ASP/ROT)

Press F5 (INTENS ASP/ROT), then adjust the following parameters.

Knob	Parameter	Setting
1	Light	Set intensity of light (0.00 to 100.00)
2	Soft	Set the degree of edge softness (0.00 to 100.00)
3	Aspect	Set aspect ratio (–100.00 to +100.00)
4	Angle <sup>a)</sup>	Set direction and amount of pattern rotation (–8.00 to +8.00)

a) When F7 (ROT SPEED) is set to “ON”, “Speed” is displayed. (See next item.)

### Rotating the spotlight pattern – F6 (ROT SPEED)

Set F6 (ROT SPEED) to “ON”, then adjust the following parameter.

Knob	Parameter	Setting
4	Speed	Set rate of rotation of pattern per frame (–100.00 to +100.00)

### Inverting the spotlight area – F7 (SPOT INVERT)

Set F7 (SPOT INVERT) to “ON”.

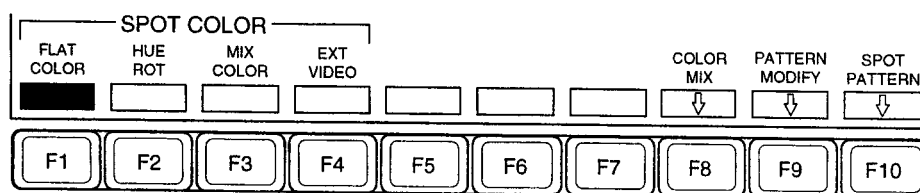
The area outside the spotlight pattern is illuminated and the area inside the spotlight pattern is not illuminated.

To return to the original setting, press F7 (SPOT INVERT) again, to set it to “OFF”.

### Selecting the signal to be used for the spotlight portion – F8 (SPOT COLOR)

- 1 Press F8 (SPOT COLOR).

The SPOTLIGHT COLOR menu appears.



Function key indications in the SPOTLIGHT COLOR menu

- 2 Press any of F1 (FLAT COLOR) to F4 (EXT VIDEO), and adjust the parameters as required.

*The significance of the parameters and their setting ranges are the same as for a background. For details, see the section “BKGD Settings” (page 4-8).*

#### Option

- F3 (MIX COLOR) and F8 (COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F4 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

### Modifying the spotlight pattern – F9 (PATTERN MODIFY)

Pressing F9 (PATTERN MODIFY) displays the PATTERN MODIFY menu. The operations in this menu are basically the same as the operations in the PATTERN MODIFY menu used for wipe crop operations.

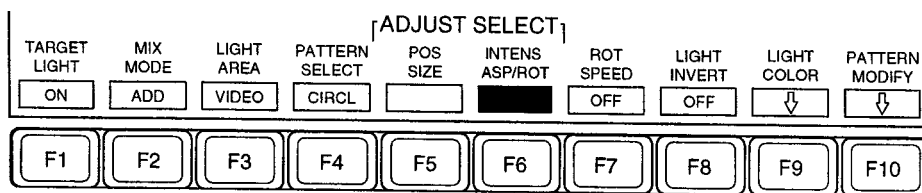
*For details of the operations, see the section “Modifying the wipe pattern” (page 4-25).*

# TARGET LIGHTING Settings

### Notes

- This function is not available on the DME-3000.
- Since there is no depth information in the target lighting effect portion, it is not possible to use three-dimensional combination (the combiner “DEPTH” function).

In the LIGHT EFFECT menu, select item 3 (TARGET LIGHTING) to display the TARGET LIGHTING menu.



Function key indications in the TARGET LIGHTING menu

The following are some of the operations carried out in this menu.

### Toggling the target lighting on and off – F1 (TARGET LIGHT)

Press F1 (TARGET LIGHT).

When this is set to “ON”, the target lighting settings are enabled.

### Selecting the method of combination – F2 (MIX MODE)

Press F2 (MIX MODE) to select the method of combination.

**ADD:** The light impinges strongly.

**MIX:** The light impinges softly.

### Selecting where the target light impinges – F3 (LIGHT AREA)

Press F3 (LIGHT AREA) to select where the light impinges.

**VIDEO:** The image portion only

**BKGD:** The background only

**ALL:** Both image and background portions.

---

### Selecting the target lighting pattern – F4 (PATTERN SELECT)

Press F4 (PATTERN SELECT) to select the lighting pattern.

Pressing F4 cycles through the following settings in order: CIRCLE, BOX (rectangle), and WIPE (wipe pattern).

#### Option

To select a wipe pattern as the lighting pattern requires the BKDM-3040 option.

### Setting the target lighting pattern position, size, light intensity, and other parameters – F5 (POS SIZE) to F7 (ROT SPEED)

The functions of F5 (POS SIZE) to F7 (ROT SPEED) in the TARGET LIGHTING menu are the same as the functions of F4 to F6 in the SPOTLIGHTING menu.

*For details of operations, see page 4-148.*

### Selecting the signal to be used for the target light portion – F9 (LIGHT COLOR)

Use the following procedure.

- 1 Press F9 (LIGHT COLOR).

The LIGHT COLOR menu appears.

LIGHT COLOR									
FLAT COLOR	HUE ROT	MIX COLOR	EXT VIDEO	RANDOM COLOR	RANDOM			COLOR MIX	PATTERN MODIFY
					OFF			↓	↓
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the LIGHT COLOR menu

#### Option

- F4(MIX COLOR) and F10(COLOR MIX) are only effective when the BKDM-3040 option is installed.
- F5(EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

- 2 Press any of F1 (FLAT COLOR) to F5 (RANDOM COLOR) to select the signal to be used for the target light portion, and adjust the parameters.

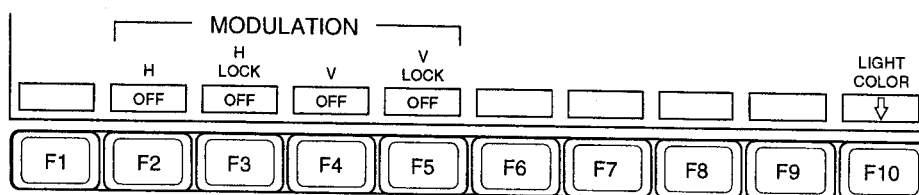
*For F1 (FLAT COLOR) to F4 (EXT VIDEO), see the section "BKGD Settings" (page 4-8), and for F5 (RANDOM COLOR) and F6 (RANDOM), see the section "Selecting the signal for the border or outline" (page 4-17).*

## Modifying the target light pattern – F10 (PATTERN MODIFY)

When “CIRCLE” or “BOX” is selected

- 1 Press F10 (PATTERN MODIFY).

The PATTERN MODIFY menu appears.



Function key indications in the PATTERN MODIFY menu

- 2 To apply a horizontal modulation, set F2 (H) to “ON”, then adjust the following parameters.

Knob	Parameter	Setting
1	Amplitude	Set direction and amplitude of the waves (0.00 to 100.00)
2	Frequency	Set degree of fineness of the waves (0.00 to 100.00)
3	Speed (When F3 is set to “OFF”)	Set direction and speed of the waves (–100.00 to +100.00)

- 3 To apply a vertical modulation, set F4 (V) to “ON”, then adjust the parameters.

The significance of the parameters and their setting ranges are the same as for horizontal modulation. *See step 2.*

- 4 To stop the waves in the horizontal direction, press F3 (H LOCK), and to stop the waves in the vertical direction, press F5 (V LOCK), setting the respective setting to “ON”.

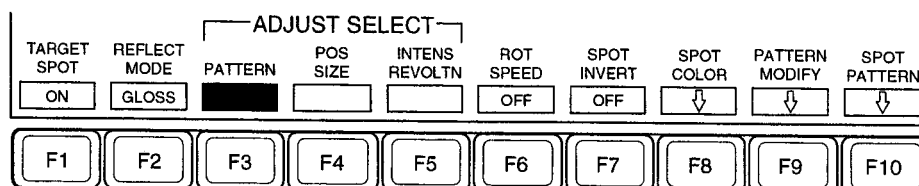
### When “WIPE” is selected

Pressing F10 (WIPE PATTERN) displays the WIPE PATTERN menu. The operations in this menu are basically the same as the operations in the SPOT LIGHT PATTERN menu.

*For details of the operations, see the section “Mixing spotlight patterns (main and subsidiary)” (page 4-149).*

## TARGET SPOTLIGHTING Settings

In the LIGHT EFFECT menu, select item 4 (TARGET SPOT) to display the TARGET SPOTLIGHTING menu.



Function key indications in the TARGET SPOTLIGHTING menu  
(when F2 is set to "PLANE", only F1, F2, and F8 appear)

The following are some of the operations carried out in this menu.

*For details of F3 (PATTERN) and F6 (ROT SPEED) to F10 (SPOT PATTERN), see the section "SPOTLIGHTING Settings" (page 4-148). However, there is no "MULTI" setting for PATTERN MODIFY.*

### Toggling the target spotlighting on and off – F1 (TARGET SPOT)

Press F1 (TARGET SPOTLIGHT).

When this is set to "ON", the target spotlight settings are enabled.

### Selecting the way in which the light impinges – F2 (REFLECT MODE)

Press F2 (REFLECT MODE) to cycle through the settings: PLANE, GLOSS and MATTE.

**PLANE:** the effect of parallel rays of light impinging on the image surface. As the orientation of the image is changed, the reflected light changes, and consequently the image brightness changes.

**GLOSS:** the effect of light impinging on a mirror or metallic gloss surface. As the light source position changes, the position of the pattern on the image plane also changes. In this mode, unless the light reflected from the image arrives at the viewpoint, it is not possible to see the lighting pattern.

**MATTE:** the effect of a beam along the z-axis of the target coordinate frame impinging on a matte surface.

## Lighting

---

### Setting the position of the light source and the size of the light – F4 (POS SIZE)

Press F4 (POS SIZE), then adjust the following parameters.

When “PLANE” is selected as F2 (REFLECT MODE):

Knob	Parameter	Setting
1	Lon	Set longitude of light source (–8.00 to +8.00)
2	Lat	Set latitude of light source (–90.00 to +90.00)
3	Ambient	Set brightness around the spotlight (0.00 to 100.00)

When “GLOSS” is selected as F2 (REFLECT MODE):

Knob	Parameter	Setting
1	Lon	Set longitude of light source (–8.00 to +8.00)
2	Lat	Set latitude of light source (–90.00 to +90.00)
3	Size	Set size of light (0.00 to 100.00)

When “MATTE” is selected as F2 (REFLECT MODE):

Knob	Parameter	Setting
1	X	Set x-coordinate of center position (–10.00 to +10.00)
2	Y	Set y-coordinate of center position (–10.00 to +10.00)
3	Size	Set size of light (0.00 to 100.00)



## Adjusting the light intensity and setting revolution – F5 (INTENS REVOLTN) (INTENS SOFT when “PLANE” is selected)

Press F5 (INTENS REVOLTN), then adjust the following parameters.

Knob	Parameter	Setting
1	Light	Set brightness of the portion where light impinges (0.00 to 100.00)
2	Diffusion	Set degree of diffusion of light (0.00 to 100.00)
3	Ambient	Set brightness around the periphery of impinging light (0.00 to 100.00)
4	Angle (when F6 is set to “OFF”) <sup>a)</sup>	Set direction and amount of pattern rotation (–8.00 to +8.00)
	Speed (when F6 is set to “ON”) <sup>a)</sup>	Set rotation rate per frame (–12.00 to +12.00)
1	Rad (when “GLOSS” is selected) <sup>a)</sup>	Set angle with the optical axis (0.00 to 100.00)
	Offset (when “MATTE” is selected) <sup>a)</sup>	Set degree of offsetting the beam (0.00 to +8.00)
2	Revl (when F6 is set to “OFF”) <sup>a)</sup>	Set direction and amount of light source rotation (–8.00 to +8.00)
	Speed (when F6 is set to “ON”)	Set rate of rotation of light source per frame (–12.00 to +12.00)

a) Not displayed when “PLANE” is selected.

# Auto Cube Function

---

Using the auto cube function to move or rotate any parallelepiped (six faced solid with all opposite faces parallel) such as a cubic or slab, you can automatically carry out the switch between front and back video. Since you can use one image to provide a pair of opposite faces, you can create a symmetrical solid with the minimum number of channels or edit operations. This section describes how to create a cube or slab, and move or rotate it using the auto cube function.

---

## Creating, Moving, and Rotating a Cube

The first example shows how to create, move, and rotate a cube of side 6.00 units.

### Preliminary operations

First make the following settings.

- In the CHANNEL ASSIGN menu (*see page 9-4*), set F8 (GLOBAL ENABLE) to "ON".
- Press the CLR WORK BUFR button twice to clear the parameters in the working key frame buffer.
- In the FRONT INPUT menu (*see page 5-7*), set the key signal type to "Internal".
- In the COMBINER menu (*see page 4-62*), set F5 (DEPTH) to "ON".
- In the BKGD menu (*see page 4-8*), set F1 (BKGD) or F8 (CLEAN KEY) to "ON".

---

### Creating the front surfaces

Use crop or “X, Y RATE” settings to create a square surface.

- **Using crop**

Crop Left: -3.00

Crop Right: +3.00

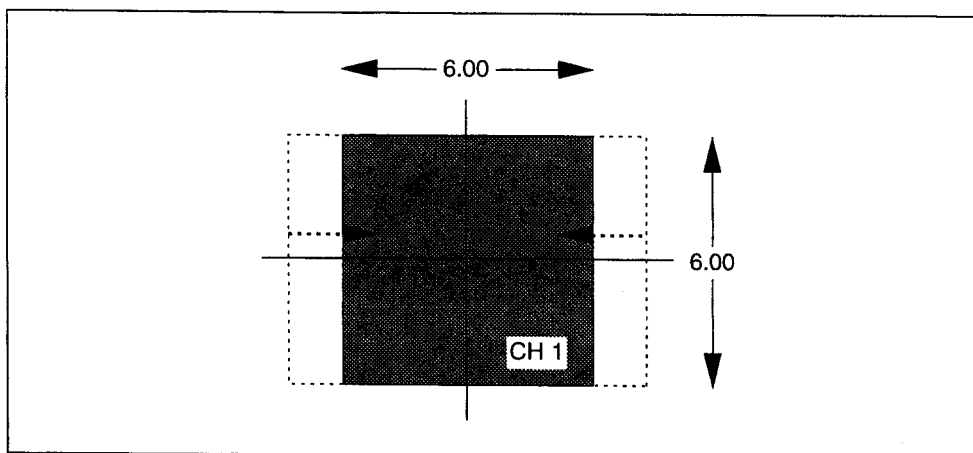
Crop Top: +3.00

Crop Bottom: -3.00

- **Using “X, Y RATE”**

X rate: 0.75

Y rate: 1.00



### Creating the cube

Use movement and rotation in the local channel to create a cube.

- **Front surface (CH 1)**

Rotation X: 0.000

Rotation Y: 0.000

Source location Z: -3.000

- **Side surface (CH 2)**

Rotation X: +0.250

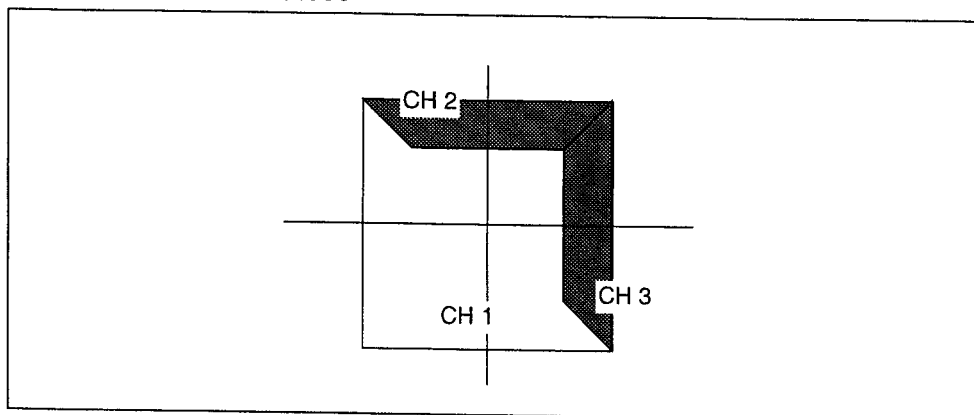
Rotation Y: 0.000

Source location Z: -3.000

## Auto Cube Function

---

- **Upper surface (CH 3)**  
Rotation X: 0.000  
Rotation Y: +0.250  
Source location Z: -3.000



### Note

If you make the edges soft, there will be small gaps where the surfaces join. It is possible to reduce the obviousness of these gaps by moving the image along the Z-axis in the source coordinates, so that the images for the different channels overlap slightly.

In this example, select SRCE LOC XYZ, and turn the Z-ring slightly counterclockwise to make the fine adjustment.

### Creating the back surfaces

Move from the IN/OUT menu to the INPUT INVERT menu to reverse the three images used to build the cube in the previous section, and create the back surfaces.

**BACK H INVERT:** invert the back surface image in the horizontal (x-axis) direction.

**BACK V INVERT:** invert the back surface image in the vertical (y-axis) direction.

---

### Moving and rotating the cube

Use the following procedure.

- 1** In the 3D TRANSFORM menu (*see page 8-3*), set F1 (AUTO CUBE) to "ON".

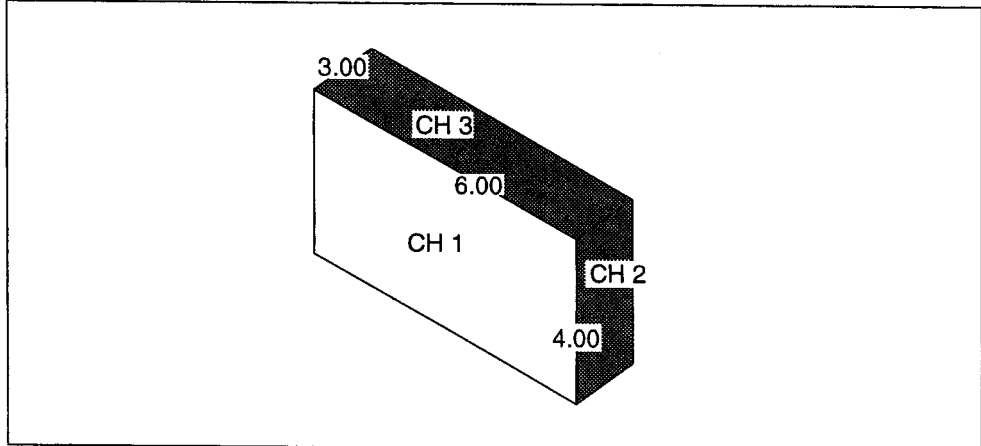
This enables the auto cube function.

- 2** Select the global channel.
- 3** Use the trackball and Z-ring to manipulate the cube.

---

## Creating, Moving, and Rotating a Slab

This example shows how to create, move, and rotate a slab of depth 4.00, width 6.00, and height 3.00 units.



## Auto Cube Function

---

First make the same preliminary settings as in the cube example (*see page 4-159*), and then use the following procedure.

- 1** Make the following size and position settings to create the front surface (6.00 × 4.00) on channel 1.
  - **Size settings**
    - Crop Left: -3.00 (1/2 width)
    - Crop Right: +3.00
    - Crop Top: +2.00 (1/2 depth)
    - Crop Bottom: -2.00
  - **Position settings**
    - Rotation X: 0.000
    - Rotation Y: 0.000
    - Source Location Z: -1.500 (1/2 height)
- 2** Make the following size and position settings to create the side surface (3.00 × 4.00) on channel 2.
  - **Size settings**
    - Crop Left: -1.50 (1/2 height)
    - Crop Right: +1.50
    - Crop Top: +2.00 (1/2 depth)
    - Crop Bottom: -2.00
  - **Position settings**
    - Rotation X: 0.250
    - Rotation Y: 0.000
    - Source Location Z: -3.000 (1/2 width)
- 3** Make the following size and position settings to create the upper surface (6.00 × 3.00) on channel 3.
  - **Size settings**
    - Crop Left: -3.00 (1/2 width)
    - Crop Right: +3.00
    - Crop Top: +1.50 (1/2 height)
    - Crop Bottom: -1.50
  - **Position settings**
    - Rotation X: 0.000
    - Rotation Y: 0.250
    - Source location Z: -2.000 (1/2 depth)

---

**Creating the back surfaces**

Use the same procedure as for the cube (*see page 4-160*).

**Moving and rotating the slab**

Use the same procedure as for the cube (*see page 4-161*).

# Chapter 5

## Input/Output Signal Operations

---

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# Selecting Input/Output Operations

Here, input/output operations refer to the selection of the video and key signals used by the DME-7000/3000, and also to the method used for interpolating video and key signals.

## Top Menu Selection

Press the IN OUT button in the menu control section to display the IN/OUT menu.

In the IN/OUT menu, press the required item selection button as shown in the following table to select the operation.

Item	Function	See page	
1 (FRONT INPUT)	Select video signal and key signal for the front side of the image.	With source selector	5-4
		Without source selector	5-6
2 (BACK INPUT)	Select video signal and key signal for the back side of the image.	With source selector	5-5
		Without source selector	5-9
3 (INPUT INVERT)	Invert the input signal.		5-10
4 (INTERPOLATION)	Select method of interpolation.		5-11
5 (EXT VIDEO)	Select external video.		5-13

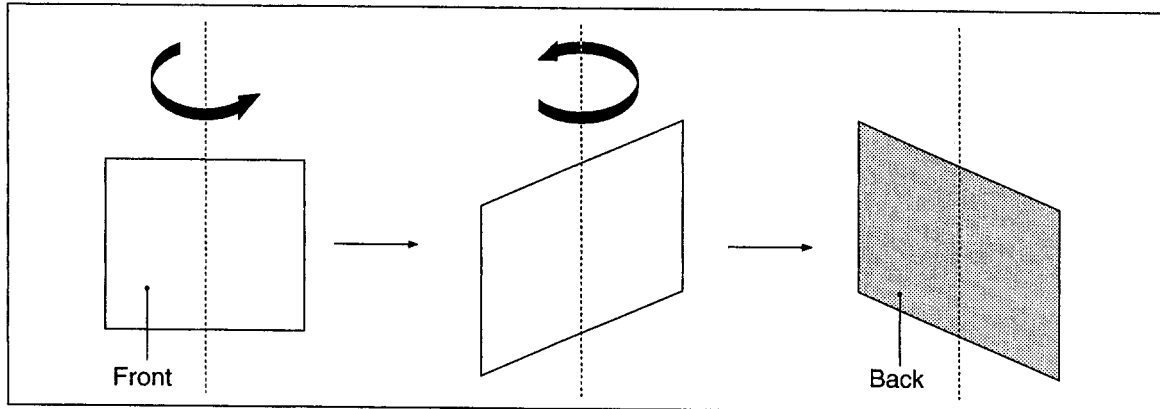
### Option

Item 5 (EXT VIDEO) is only effective when the BKDM-3050 option is installed in component mode.

---

## Front and Back

The following figure illustrates the conceptual front and reverse, or back, sides of the image.



Conceptual front and back sides

# Video Signal and Key Signal Settings (When Using a Source Selector)

When using a source selector (when in the setup SOURCE SELECTOR menu F3 (SWER) is selected) make the input signal settings as follows.

## Front Video/Key Settings

In the IN/OUT menu, select item 1 (FRONT INPUT) to display the FRONT INPUT menu.

FRONT VIDEO		FRONT KEY		KEY TYPE			KEY INVERT	SEPA SIDE	AUTO SELECT	
		INT	EXT	LUM	OFF					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OFF	OFF	OFF	<input type="checkbox"/>
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	

Function key indications in the FRONT INPUT menu

### Selecting the front video and key signals

Use the following procedure.

- 1 Use either of the following procedures to select the video signal.
  - Hold down F1 (FRONT VIDEO), and press the appropriate cross-point button in the auxiliary bus block.
  - Hold down F1 (FRONT VIDEO), and turn knob 2.

This selects the video signal.

- 2 Use either of the following procedures to select the key signal.
  - Hold down F2 (FRONT KEY), and press the appropriate cross-point button in the auxiliary bus block.
  - Hold down F2 (FRONT KEY), and turn knob 3.
  - To select the key signal previously allocated to the video signal, set F9 (AUTO SELECT) to "ON".

This selects the key signal.

- 3** Press F3 (INT) to F6 (OFF) to select the key type.

**F3 (INT):** Use the inside of the effective area defined as in “CROP Settings” (see page 4-18) as the key source.

**F4 (EXT):** Use an external key signal as the key source.

**F5 (LUM):** Use the luminance of the input video signal as the key source.

**F6 (OFF):** Set the key signal level forcibly to zero.

- 4** If you selected F4 (EXT) or F5 (LUM) in step **3**, adjust the following parameters.

Knob	Parameter	Setting
1	Clip	Set key signal reference level (–10.00 to +110.00)
2	Gain	Set key sensitivity (–100.00 to +100.00)

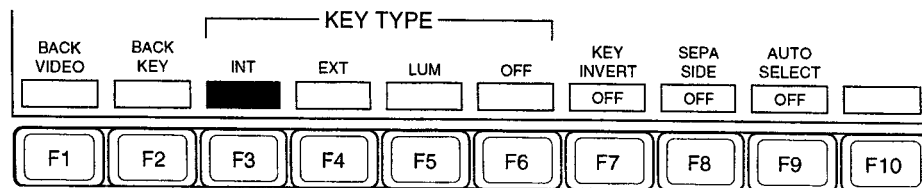
- 5** To invert the key signal, set F7 (KEY INVERT) to “ON”.

- 6** To insert separate signals in the front and back of the image, set F8 (SEPA SIDE) to “ON”.

## Back Video/Key Settings

### Selecting the back video and key signals

In the IN/OUT menu, select item 2 (BACK INPUT) to display the BACK INPUT menu.



Function key indications in the BACK INPUT menu

*Operations in the BACK INPUT menu are basically the same as in the FRONT INPUT menu. For details, see the previous section “Front Video/Key Settings.”*

# Video Signal and Key Signal Settings (When Not Using a Source Selector)

When not using a source selector (when in the setup SOURCE SELECTOR menu F2 (A/B) is selected (*see page 9-17*)) make the input signal settings as follows.

## Front Video/Key Settings

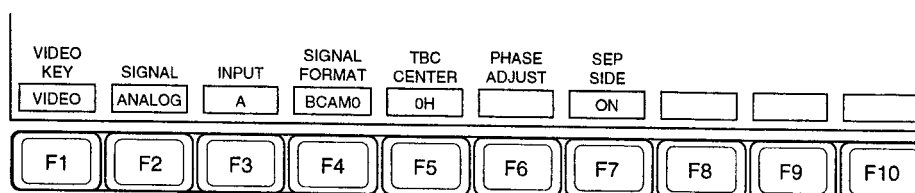
In the IN/OUT menu, select item 1 (FRONT INPUT) to display the FRONT INPUT menu.

### Selecting the front video signal

Use the following procedure.

- 1 In the FRONT INPUT menu, press F1 to select “VIDEO.”

The following function key indications appear.



Function key indications in the FRONT INPUT menu (when F1 is set to “VIDEO”)

- 2 Press F2 (SIGNAL), to select “ANALOG” or “DIGITAL”.
- 3 Press F3 (INPUT), to select “A” or “B”.

“A” and “B” correspond to the names of the input connectors on the rear panel of the processor.

- 4 Press F4 (SIGNAL FORMAT), to select the input signal format.

Pressing F4 cycles through the following possibilities.

In a component system, is in step 2 you selected “ANALOG” only, the following operations and indications are effective.

- In composite systems: 0IRE → 7.5IRE
- In component 525-line systems: SMPTE → B-CAM0 → B-CAM7.5
- In component 625-line systems: “EBU” is displayed.

- 5** Depending on the input signal phase difference, press F5 (TBC CENTER) to change the center position of the time base corrector window.

Pressing F5 cycles through the values 0H → 0.5H → 1.0H → 1.5H. The automatic correction range (the TBC window) is  $\pm 0.3H$  centered on the center position selected.

When the input signal is from the AUX BUS of the DVS-7000 or other digital video switcher, normally select 1H.

- 6** Press F6 (PHASE ADJUST), and adjust the following parameters.

Knob	Parameter	Setting
4	Phase	Set input phase (−8.03 to +8.03)

**For an analog signal in composite mode only:**

Knob	Parameter	Setting
3	SC	Adjust subcarrier phase (−100.00 to +100.00)

- 7** To insert separate signals in the front and back of the image, set F7 (SEPA SIDE) to “ON”.

### Selecting the front key signal

Use the following procedure.

- 1** In the FRONT INPUT menu, press F1 to select “KEY.”

The following function key indications appear.

VIDEO KEY KEY	SIGNAL ANALOG	INPUT A	KEY TYPE EXT	TBC CENTER 0H	PHASE ADJUST	SEP SIDE ON	KEY INVERT OFF		
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the FRONT INPUT menu (when F1 is set to “KEY”)

- 2** Press F2 (SIGNAL), to select “ANALOG” or “DIGITAL”.

(Continued)

## Video Signal and Key Signal Settings (When Not Using a Source Selector)

---

- 3** Press F3 (INPUT), to select “A” or “B”.

“A” and “B” correspond to the names of the input connectors on the rear panel of the processor.

- 4** Press F4 (KEY TYPE), to select the key type from the following possibilities:

**INT:** Use the inside of the effective area defined as in “CROP Settings” (see page 4-18) as the key source.

**EXT:** Use an external key signal as the key source.

**LUM:** Use the luminance of the input video signal as the key source.

**OFF:** Set the key signal level forcibly to zero.

- 5** Depending on the input signal phase difference, press F5 (TBC CENTER) to change the center position of the time base corrector window.

Pressing F5 cycles through the values 0H → 0.5H → 1.0H → 1.5H.

The automatic correction range (the TBC window) is  $\pm 0.3H$  centered on the center position selected.

When the input signal is from the AUX BUS of the DVS-7000 or other digital video switcher, normally select 1H.

- 6** Press F6 (PHASE ADJUST), and adjust the following parameters.

Knob	Parameter	Setting
4	Phase	Set input phase (−8.03 to +8.03)

**For an analog signal in composite mode only:**

Knob	Parameter	Setting
3	SC	Make fine adjustment to phase (−100.00 to +100.00)

- 
- 7** If you selected “LUM” or “EXT” in step **4**, adjust the following parameters.

Knob	Parameter	Setting
1	Clip	Set key signal reference level (–10.00 to +110.00)
2	Gain	Set key sensitivity (–100.00 to +100.00)

- 8** To invert the key signal, set F8 (KEY INVERT) to “ON”.
- 9** To insert separate signals in the front and back of the image, set F7 (SEP SIDE) to “ON”.

---

## Back Video/Key Settings

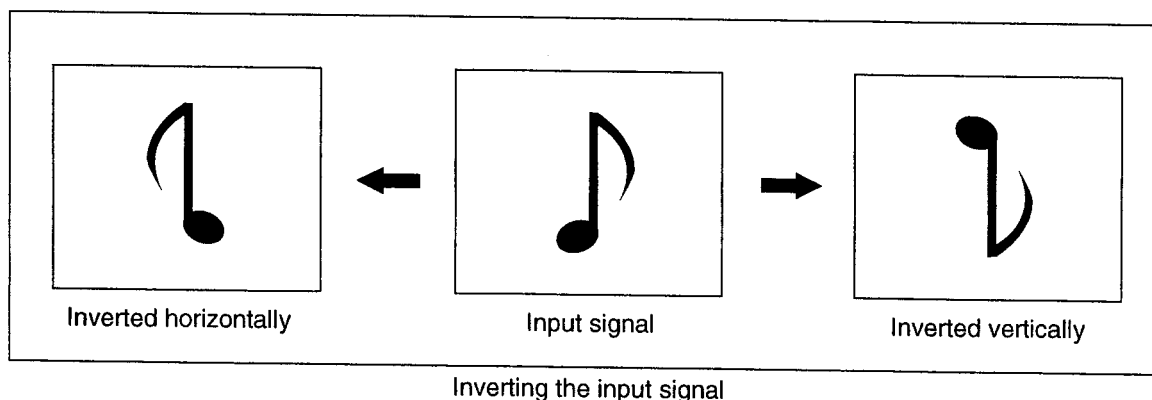
In the IN/OUT menu, select item 2 (BACK INPUT) to display the BACK INPUT menu.

*Operations in the BACK INPUT menu are basically the same as in the FRONT INPUT menu. For details, see the previous sections “Front Video/Key Settings.”*

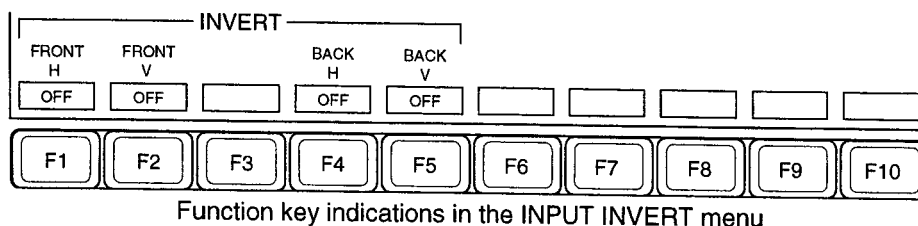


# Inverting the Input Signal

This function inverts the orientation of the input video and key signals either horizontally or vertically.



In the IN/OUT menu, select item 3 (INPUT INVERT) to display the INPUT INVERT menu.



The following are some of the operations carried out in this menu.

## Inverting the front video and key signals

- To invert the signals in the horizontal direction, set F1 (FRONT H) to "ON".
- To invert the signals in the vertical direction, set F2 (FRONT V) to "ON".

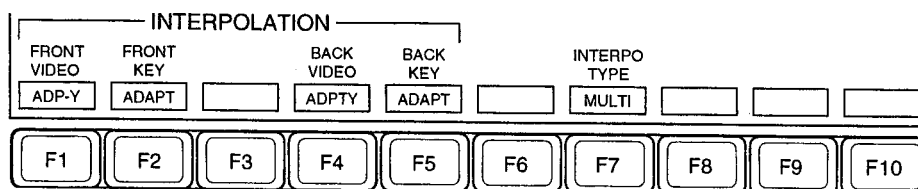
## Inverting the back video and key signals

- To invert the signals in the horizontal direction, set F4 (BACK H) to "ON".
- To invert the signals in the vertical direction, set F5 (BACK V) to "ON".

# Interpolation Settings

This function selects the method of interpolation used by the DME-7000/3000 for the input video and key signals.

In the IN/OUT menu, select item 4 (INTERPOLATION) to display the INTERPOLATION menu.



Function key indications in the INTERPOLATION menu

The following are some of the operations carried out in this menu.

## Types of interpolation for the video signal

There are four possible methods of interpolation for the video signal, as follows.

**ADP-YC (Adaptive Y/C):** By detecting movement separately in the luminance and chrominance components of the video signal, the system automatically switches between field and frame units. Use this mode normally.

**ADP-Y (Adaptive Y):** Adaptive processing is applied to the chrominance signal based on the movement detected in the luminance signal.

**FRAME:** Interpolation is carried out in frame units. This is appropriate for still images, in order to increase the image accuracy.

**FIELD:** Interpolation is carried out in field units. This is appropriate for moving images, in order to obtain natural movement.

## Interpolation Settings

---

### Types of interpolation for the key signal

There are three possible methods of interpolation for the key signal, as follows.

**ADAPT:** By detecting movement from the luminance component of the key signal, the system automatically switches between field and frame units.

**FRAME:** The same as the “FRAME” setting for the video signal.

**FIELD:** The same as the “FIELD” setting for the video signal.

### Selecting the method of interpolation for input signals

- To change the setting for the front video signal, press F1 (FRONT VIDEO).
- To change the setting for the front key signal, press F2 (FRONT KEY).
- To change the setting for the back video signal, press F4 (BACK VIDEO).
- To change the setting for the back key signal, press F5 (BACK KEY).

Pressing F1 or F4 cycles through the settings: ADP-YC → ADP-Y → FRAME → FIELD.

Pressing F2 or F5 cycles through the settings: ADAPT → FRAME → FIELD.

### Selecting the pixel count for interpolation processing

Press F7 (INTERPO TYPE) to toggle the pixel count for interpolation processing between “MULTI” and “LIN”.

#### Note

This function is not available on the DME-3000.

**MULTI:** Interpolation processing is carried out for an  $8 \times 8$  pixel count. This leads to higher image quality, and is therefore the mode for normal use.

**LIN (“Linear”):** Interpolation processing is carried out for a  $2 \times 2$  pixel count. Use this mode only when it is necessary to emulate DME-3000 image quality.

# External Video Input and Output Settings

When using a component system, the following settings are possible for the EXT/C input (the input to the EXT/C connector of the COMBINER INPUTS) and the EXT/C output (the output from the EXT/C connector of the COMBINER OUTPUTS).

- TBC window center position
- Input phase
- Output source
- Output phase

In the IN/OUT menu, select item 5 (EXT VIDEO) to display the EXT VIDEO menu.

TBC CENTER		OUTPUT SOURCE							
1H		EXTVID							
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the EXT VIDEO menu

The following are some of the operations carried out in this menu.

## Setting the TBC window center position and input phase

Use the following procedure.

- 1 Depending on the input signal phase difference, press F1 (TBC CENTER) to change the center position of the time base corrector window.

Pressing F1 cycles through the values 0H → 0.5H → 1.0H → 1.5H. When the input signal is from the AUX BUS of the DVS-7000 or other digital video switcher, normally select 1H.

- 2 Adjust the following parameter.

Knob	Parameter	Setting
3	Phase	Set input phase (−8.03 to +8.03)

## External Video Input and Output Settings

### Setting the output source and output phase

Use the following procedure.

- 1 Press F3 (OUTPUT SOURCE) to select the output source according to the desired EXT/C output.

Desired EXT/C output	Output source selection
EXT/C input (output 1 frame delayed) <sup>a)</sup>	EXT VID
Combined signal (KEY/Z signal) of KEY and Z for the depth key used when a DVS-2000C is connected	KEY/Z <sup>b)</sup>

a) While using the EXT/C input internally to the DME-7000/3000, the EXT/C becomes a gray level signal.

b) The output from the KEY/Z connector of the COMBINER OUTPUTS (for connection to a downstream DME-7000/3000) also becomes a KEY/Z signal.

- 2 Adjust the following parameter.

Knob	Parameter	Setting
4	Phase	Adjust output phase (–25.03 to +25.03)

#### Note

- With the output source set to KEY/Z, when combining the output image from the DME-7000/3000 using depth keying on a DVS-2000C, if you set the key type to “EXT” or “LUM” and set the “RECUR” (recursive) item to “ON”, the edges of the combined image will be jagged.
- The level of the KEY/Z signal key output changes according to the selection made with F3 (OUTPUT).

**When “EXT VID” is selected:** even when the “BKGD” (background) item is set to “ON”, the same KEY/Z signal is output as when it is set to “OFF”.

**When “KEY/Z” is selected:** if you set the “BKGD” item to “ON”, the key output is the Combiner Output level 1. (This is distinct from the Program Output level 1.) The depth information (z) has the same value as in the case of “Location Z=0”.

# Chapter 6

## Key Frame Effects

---

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# Overview

---

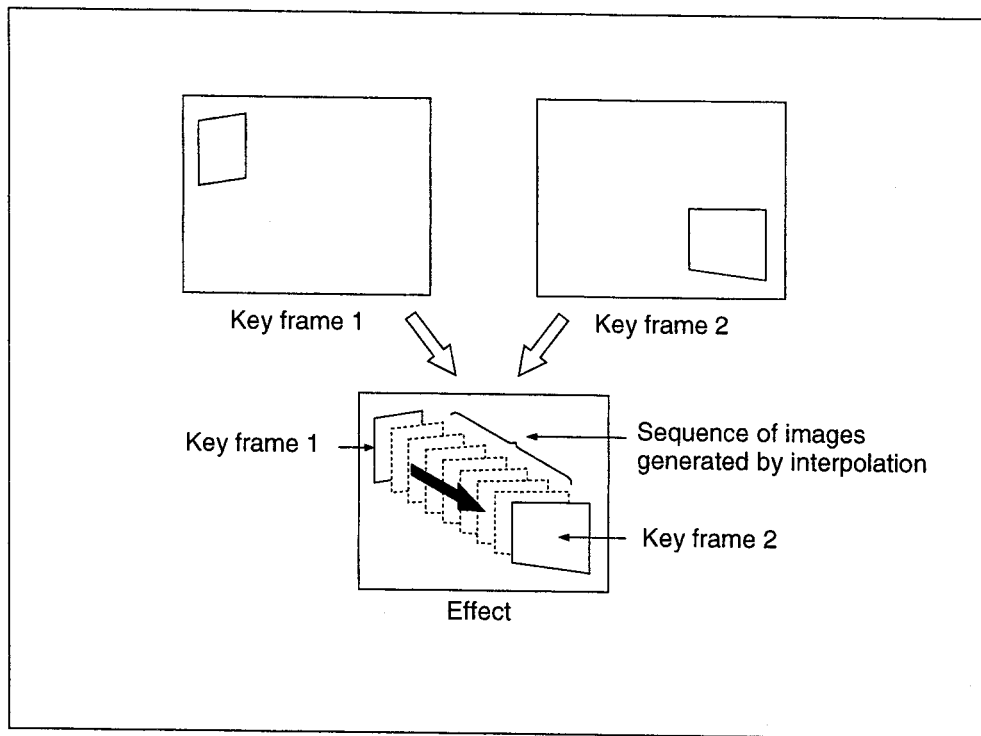
This section gives an overview of key frame creation on the DME-7000/3000.

---

## Key Frames and Effects

A key frame is a set of data which determines the instantaneous pattern of an effect during a transition.

An effect, in turn, is obtained from a sequence of key frames, interpolated along the time axis so as to appear continuous.



Obtaining an effect from a sequence of key frames

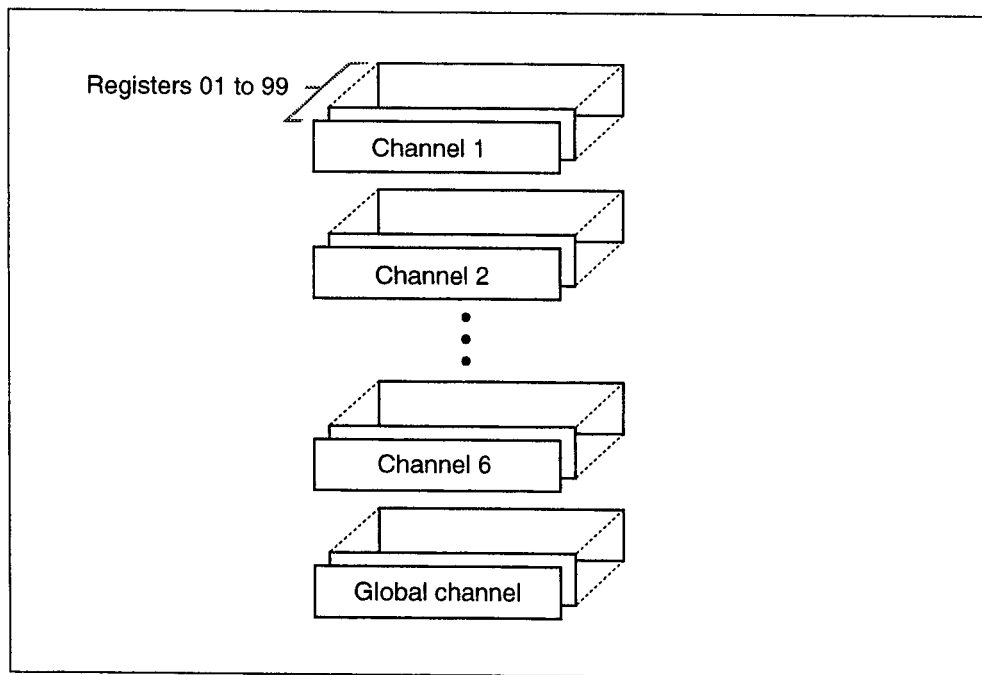
---

## Register Organization

The memory used to store the collection of key frames making up an effect is divided into notional registers, numbered from 1 to 99. Each register can hold a maximum of 99 key frames.

Each register is capable of holding effects for each of seven channels (channels 1 to 6, and the global channel).

(The total capacity for channels 1 to 6 and the global channel together is 1000 key frames.)



Register organization



# Key Frame Operations

---

## Creating and Editing Key Frames

---

The method of capturing DME images as key frames is basically the same as when capturing images on the switcher. *Refer to Chapter 8 of the BZS-7020 User's Guide, for details.*

## Saving and Recalling Effects

---

The procedure for saving and recalling DME effects is basically the same as on the switcher, but some of the buttons used are slightly different, as follows.

### Accessing a register

Use the following procedure to access a register in which to save an effect.

- 1** In the numeric keypad section, press the EFF button, turning it on.
- 2** Press the required button(s) corresponding to the DME channel(s) from among the subregister buttons (DME 1 to DME 6 and DME GLBL), turning it on.
- 3** Press the RECALL button, turning it on.
- 4** Enter the number of the register you wish to access, using the numeric keypad, and press the ENTER button.
  - When creating a new effect, access a register which is not currently holding an effect. To access the next vacant register after the currently recalled register, without explicitly specifying a number, enter a period “.” in place of the number.

This accesses the specified register.

---

## Saving an effect in a register

To save a created effect in a DME register, use the following procedure.

- 1** In the numeric keypad section, press the EFF button, turning it on.
- 2** Press the required button(s) corresponding to the DME channel(s) from among the subregister buttons (DME 1 to DME 6 and DME GLBL), turning it on.
- 3** Press the STORE/LEARN button, turning it on.
- 4** Enter the number of the register in which you wish to save the effect, and press the ENTER button.

---

## Effect Execution

The procedure for executing DME effects is basically the same as for switcher effects. Select the channel(s) for execution using the subregister selection buttons in the numeric keypad section, and execute the effect in the same way as on the switcher.

*Refer to Chapter 8 of the BZS-7020 User's Guide, for details.*

## Key Frame Operations

---

### Parameter Settings Which Can Be Included in Key Frames

---

Some of the parameter settings on the control panel can be included in key frames, and others cannot.

Basically, the SETUP menu settings cannot be included, and the remainder of the settings can be. There are, however, exceptions as listed in the following table.

Parameters which cannot be included		Parameters which can be included	
Menu name	Parameters	Menu name	Parameters
BKGD	Super Black Level	PROCESS CONTROL 2	WRAP AROUND (on/off setting)
FRONT INPUT, BACK INPUT	Format, TBC CENTER, Phase		
EFFECT RUN MODE	Default KF Dur, Xpoint Hold (on/off setting)		

# Path Settings

These settings determine the way in which the elements defining the image change in the interpolated images. The term “path” is used to refer to the manner of interpolation.

## Selecting Settings

It is possible to select the interpolation path between key frames separately for different items (three-dimensional transformations, or various special effects, for example), or alternatively you can make a single setting for all items.

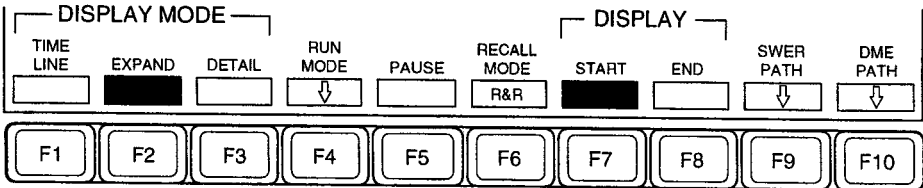
### DME KF PATH menu

The path setting items are selected from the DME KF PATH menu.

Use the following procedure to display the DME KF PATH menu.

- 1 Press the KEY FRAME top menu selection button.

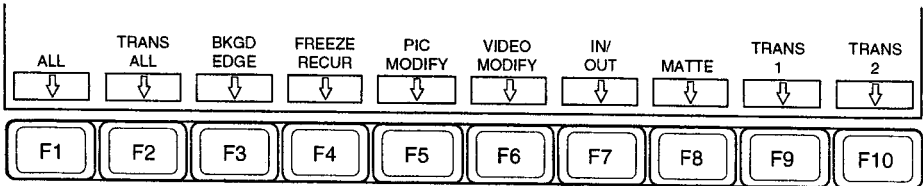
The KEY FRAME menu appears.



For details of F1 to F9 in this menu, refer to Chapter 8 of the BZS-7020 User's Guide.

- 2 Press F10 (DME PATH).

The DME KF PATH menu appears.



## Path Settings

### Selection operation

In the DME KF PATH menu, press the required function key as shown in the following table to select the menu.

Function key	Items set in the menu
F1 (ALL)	All items
F2 (TRANS ALL)	Three-dimensional transformations
F3 (BKGD EDGE)	BKGD & EDGE menu settings
F4 (FREEZE RECUR)	FREEZE & RECUR menu settings
F5 (PIC MODIFY)	PICTURE MODIFY menu settings
F6 (VIDEO MODIFY)	VIDEO MODIFY menu settings
F7 (IN/OUT)	Input/output signal operation settings
F8 (MATTE)	Color matte generator settings
F9 (TRANS 1)	Detailed settings for three-dimensional transformations
F10 (TRANS 2)	

## Basic Operations for Path Settings

### Making the same path setting for all items

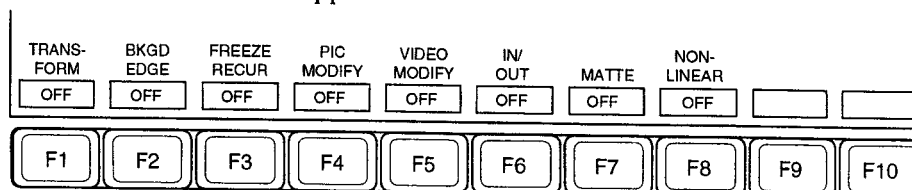
To make the same path setting for all items, use the following procedure in the PATH ALL menu. When making different path settings for different items, follow a modified version of the same procedure.

- 1 Stop the effect on the key frame for which you wish to make the path setting.

This makes a path setting which affects the interpolation from this key frame to the next key frame.

- 2 In the DME KF PATH menu, press F1 (ALL).

The PATH ALL menu appears.



Function key indications in the PATH ALL menu

- 
- 3** Press F1 (TRANSFORM) to F8 (NONLINEAR), corresponding to the settings you wish to make.

For example, pressing F1 (TRANSFORM) cycles through the following five possibilities: OFF → STEP → LINEAR → S-curve → Spline curve. F6 (MATTE) has six settings, but others, except spline curve, have four settings.

The following path settings are provided in the menu.

**OFF:** Make no change as the effect proceeds.

**STEP:** Change stepwise at each key frame. In other words, there is no interpolation in the interval between key frames.

**LINEAR:** Interpolate linearly between key frames. This maintains a constant speed of movement.

**S-CURVE:** Accelerate and decelerate around each key frame, so that the speed is maximum at the mid-point between two key frames.

**SPLINE:** Use a spline curve to provide a smooth interpolation. (Valid for three-dimensional transformations only)

#### Path settings for “MATTE”

Settings other than “OFF” and “STEP” indicate a HUE change as seen on a vectorscope as follows:

**CW:** Rotate the hue clockwise.

**CCW:** Rotate the hue counterclockwise.

**LONG:** Rotate the hue in whichever direction makes the path to the next frame longest.

**SHORT:** Rotate the hue in whichever direction makes the path to the next frame shortest.

- 4** If with F1 (TRANSFORM) you selected a spline curve, adjust the parameters.

Knob	Parameter	Setting
1	Tension	Set degree of tension between points (–4 to +4)
2	Bias	Set degree of inclination of tangent at point (–4 to +4)
3	Continuity	Set degree of continuity at point (–4 to +4)



# **Chapter 7**

## **Snapshot, Register, and Disk Operations**

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# Snapshot, Register, and Disk Operations

---

DME snapshot, register, and disk operations on the BZDM-7720/3720 are basically the same as on the switcher.

For details of the operations, refer to the chapters of the BZS-7020 User's Guide. Note, however, that corresponding to the switcher subregister selection, on the DME you select channels (channels 1 to 6, and the global channel).

To make the channel selection, use the DME 1 to DME 6 and DME GLBL buttons from the subregister selection section in the numeric keypad section.

## Snapshot Operations

*Refer to Chapter 7 of the BZS-7020 User's Guide.*

*In particular, see the section, "DME snapshot operations," (page 7-13).*

## Register Operations

*Refer to Chapter 9 of the BZS-7020 User's Guide.*

*In particular, see the section, "DME registers," (page 9-2).*

## Disk Operations

*Refer to Chapter 10 of the BZS-7020 User's Guide.*

*In particular, see the section, "Saving DME data," (page 10-2).*

### Note

If you carry out any other operation on the DME during a disk operation, the disk operation may be aborted resulting in a communications error.

During a disk operation, do not carry out any other operation on the DME.

# Chapter 8

## Status Displays

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# Selecting Status Displays

---

The status displays show the current settings of the three-dimensional transformation parameters. Included with the status displays is also the DME STATUS menu, which provides a function for copying a matte color used for DME operations and for capturing a matte color.

## Top menu selection

The status displays are selected from the DME STATUS menu.

Press the required item selection button in the DME STATUS menu as follows.

Item selection button	Function	See page
2 (3D TRANS)	Display current settings of three-dimensional transformation parameters.	8-3
3 (MATTE)	Copy or capture a matte color.	8-4

# Three-Dimensional Transformation Status Display

This displays the current state of the three-dimensional transformation parameters.

In the DME STATUS menu, select item 2 (3D TRANS) to show the 3D TRANSFORM display.

The screenshot shows the DME STATUS menu with the 3D TRANS option selected. The menu includes a table of 3D transformation parameters and an AUTO CUBE section at the bottom.

	X	Y	Z
SIZE	----	----	1.0000
LOCATION	0.0000	0.0000	0.0000
AXIS LOC	0.0000	0.0000	0.0000
ROTATION	0.0000	0.0000	0.0000
SKEW/ASPECT	0.0000	0.0000	1.0000
PERSPECTIVE	0.0000	0.0000	0.0600
TRGT LOC/SIZE	0.0000	0.0000	1.0000
TRGT APIN	0.0000	0.0000	0.0000
SRCE SPIN	0.0000	0.0000	0.0000

AUTO CUBE  
OFF

3D TRANSFORM display

The 3D TRANSFORM display shows the current state of the three-dimensional transformation parameters. You can also carry out the following operation.

## Turning the auto cube function on and off

Press F1 (AUTO CUBE).

When this is set to "ON", the auto cube function is effective.

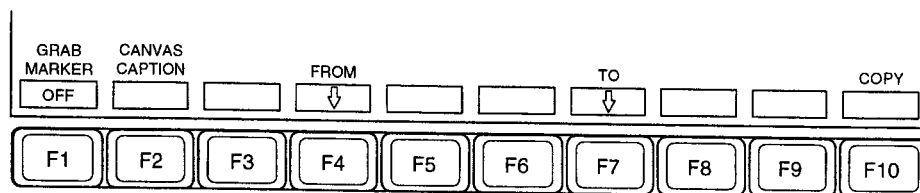
*For details, see page 4-158.*

# Matte Color Copying and Capture Operations

You can copy the colors produced by the color matte generators for BKGD, BORDER, SHADOW, COLOR MIX, and other effects to other color matte generators. You can also capture a color for a color matte generator from an input video signal.

## Displaying the COLOR MATTE menu

In the DME STATUS menu, select item 3 (MATTE) to display the COLOR MATTE menu.



Function key indications in the COLOR MATTE menu

The following are some of the operations carried out in this menu.

### Copying a color – F4 (FROM), F7(TO), F10 (COPY)

Use the following procedure.

- 1** Use F4 (FROM) to select the source color matte generator. Alternatively, hold down F4 and turn knob 2.
- 2** Use F7 (TO) to select the destination color matte generator. Alternatively, hold down F4 and turn knob 3.
- 3** Press F10 (COPY).

This carries out the copy.

### Selecting the color of the matte – F4(FROM)

- 1** Use F4 (FROM) to select the color matte generator. Alternatively, hold down F4 and turn knob 2.
- 2** Adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

---

### **Grabbing a color from video input – F1 (GRAB MARKER), F7(TO), F10 (COPY)**

Use the following procedure.

**1** Either press F7 (TO) or use knob 3 while holding down F7 to move the cursor and select the color matte generator to which you wish to capture the color.

**2** Set F1 (GRAB MARKER) to “ON”.

A marker appears on the video monitor screen, and the trackball is automatically delegated to marker movement.

#### **Note**

Any of the following operations automatically turns the grab marker off:

- Selecting a different menu
- Changing the channel
- Pressing the MENU, SRCE or TRGT button in the DME control panel

**3** Use the trackball to align the grab marker with the desired color.

**4** Press F10 (COPY).

This sets the color matte to the selected color.

**5** Set F7 (GRAB MARKER) to “OFF”.

The marker disappears.

### **Capturing the input video in frame memory – F2 (CANVAS CAPTION)**

This captures a still image in frame memory for use with the sketch effects DRAW1 and DRAW2 functions (*see page 4-84*).

Each time you press F2 (CANVAS CAPTION), the input video is captured as a freeze frame in frame memory.

#### **Note**

The capacity of the frame memory is a single frame, and thus the contents are overwritten each time a frame is captured. The color grabber also overwrites the frame memory.



# Chapter 9

## Setup Operations

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# Selecting Setup Items

---

The setup items are settings for controlling the operation of the control panel and other equipment connected to the DME-7000/3000.

Normally these settings will be made when the system is installed, but it may also be necessary to make changes from time to time.

This section describes how to access these menus from the top menu.

## Note

When you are using a BKDM-3010 DME Control Panel, install the software required for setup (BZDM-7020/3020 SYSTEM DISK 1 and 2) from the BKDM-3010.

## Changing the signal format or screen mode

In order that changing the signal format or screen mode is done simultaneously on the switcher, use the switcher SETUP menu.

*For details, refer to Chapter 10, "Setup", of the BZS-7020 User's Guide.*

## Note

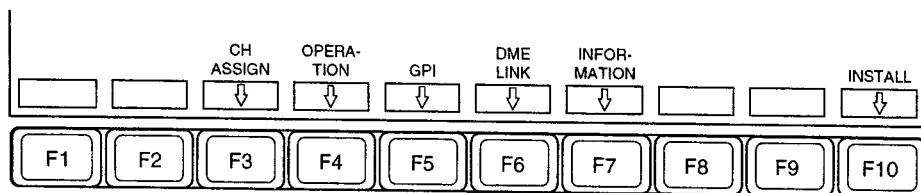
Changing either of these settings resets the DME.

---

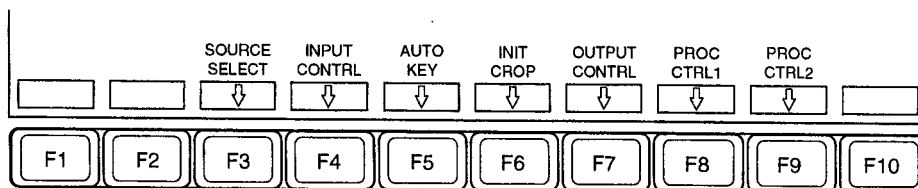
## Top Menu Display

To use the menus for setup settings, select the DME SETUP menu.

The DME SETUP menu contains two groups of function key indications, which you can select with item selection buttons 1 and 2.



Function key indications in the DME SETUP menu (group 1)



Function key indications in the DME SETUP menu (group 2)

## Selections in the two groups

In the DME SETUP menu, press the required function key as shown in the following table to select the menu.

### Selecting from the first group of function key indications

Function key	Function	See page
F3 (CH ASSIGN)	Assign channel numbers.	9-4
F4 (OPERATION)	Make settings related to operation.	9-6
F5 (GPI )	Make GPI settings.	9-9
F6 (DME LINK)	Make settings relating to the DME LINK function.	9-12
F7 (INFORMATION)	Display the software version of the processor and any installed option boards.	9-13
F10 (INSTALL)	Install system software.	9-14

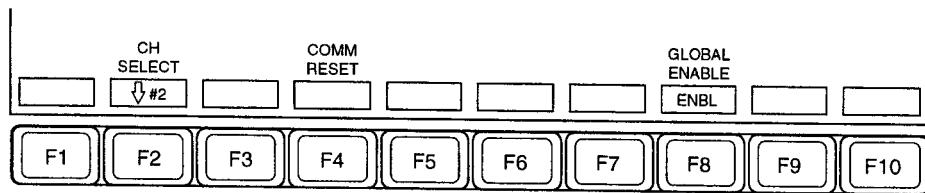
### Selecting from the second group of function key indications

Function key	Function	See page
F3 (SOURCE SELECT)	Make settings relating to a source selector.	9-17
F4 (INPUT CONTRL)	Set up input signals.	9-18
F5 (AUTO KEY)	Assign a particular key signal to each video signal.	9-21
F6 (INIT CROP)	Set initial position of cropping frame.	9-23
F7 (OUTPUT CONTRL)	Set up output signals.	9-24
F8 (PROC CTRL 1)	Select the manner of processing signals.	9-26
F9 (PROC CTRL 2)	Select the manner of processing signals and so forth.	9-29

# Channel Number Assignments

In this menu you can display the channel assignments, and select whether a particular channel is included in the global channel or not. It also allows you to reset the communications link between the switcher control panel and the DME if it is lost for any reason.

With the first group of function key indications shown in the DME SETUP menu, press F3 (CH ASSIGN) to display the CHANNEL ASSIGN menu.



Function key indications in the CHANNEL ASSIGN menu

The following are some of the operations carried out in this menu.

## Resetting the communications link – F4 (COMM RESET)

If for any reason the communications link between the switcher control panel and the DME is lost, press F4 (COMM RESET).

This resets the communications link for all connected channels.

---

### **Selecting whether a channel is included in the global channel – F2 (CH SELECT) and F8 (GLOBAL ENABLE)**

Use the following procedure to select, for each of channels 1 to 6, whether it is included in the global channel.

- 1** Press F2 (CH SELECT) to select the logical channel number (1 to 6) for which you wish to make the setting. Alternatively, turn knob 2.
- 2** Press F8 (GLOBAL ENABLE).

Pressing F8 toggles the asterisk indication on the “GLOBAL ENABLE” line on and off.

When an asterisk is displayed the channel is included in the global channel; when no asterisk is displayed it is not.

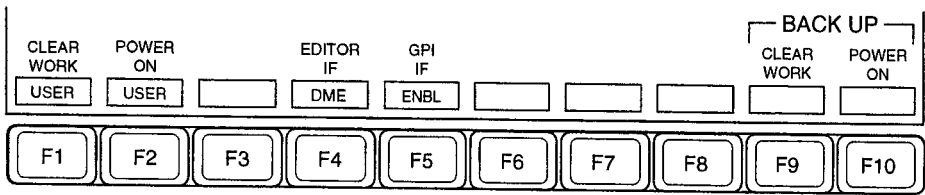
#### **Note**

Carrying out image processing while this menu is displayed results in a drop in display speed, and smooth motion may no longer be obtained. When you have made the necessary settings, switch to a different menu.

# Settings Related to Operation

This menu controls various settings related to operation from the control panel.

With the first group of function key indications shown in the DME SETUP menu, press F4 (OPERATION) to display the OPERATION menu.



Function key indications in the OPERATION menu

The following are some of the operations carried out in this menu.

### Selecting the initializing mode for the working key frame buffer – F1 (CLEAR WORK)

Pressing the CLR WORK BUFR (clear working buffer) button in the DME control panel initializes the working key frame buffer. There are two options for the state to which the working key frame buffer is cleared, selected by pressing F1 (CLEAR WORK) as follows.

**FACTORY:** Clear to the factory default settings.

**USER:** Clear to the settings determined using F9 (CLEAR WORK).

### Selecting the power on mode – F2 (POWER ON)

There are two options for the initial state of the display when the system is powered on, selected by pressing F2 (POWER ON) as follows.

**FACTORY:** Initialize to the factory default settings.

**USER:** Initialize to the settings determined using F10 (POWER ON).

---

### Enabling the editor interface – F4 (EDITOR IF)

To control the DME unit from an editor connected to the EDITOR connector on the rear panel of the DME processor, press F4 (EDITOR IF) to select one of the following.

**DME:** Control from the editor using DME protocol.

**VTR:** Control from the editor using VTR protocol.

**DSBL:** Disable control from the editor.

Set the device constants for the intelligent device controller connected to the editor according to the protocol used, as shown in the following table.

<b>DME protocol</b>		CONST-1: 01 40 00 00 06 00 07 06
<b>VTR protocol</b>	525-line systems	CONST-1: D0 02 00 96 03 03 02 81
		CONST-2: 0A 02 FF 00 00 0A FF
	625-line systems	CONST-1: D1 02 00 7D 03 03 02 81
		CONST-2: 0A 02 FF 00 00 0A FF

### Enabling GPI input – F5 (GPI IF)

To activate the DME by means of trigger signals input from external equipment connected to the GPI connector on the rear panel of the processor, press F5 (GPI IF) to select “ENBL” (enable).

Pressing F5 toggles between “ENBL” and “DSBL” (disable) settings.

*For details of the trigger types and the operations which they cause, see the section “GPI Settings” (page 9-9).*

## Settings Related to Operation

---

### **Saving a state to be recalled by pressing the CLR WORK BUFR button – F9 (CLEAR WORK)**

- 1** Set the three-dimensional transformation parameters, effects and so on to the required initial state.
- 2** In the OPERATION menu, press F9 (CLEAR WORK).

This stores the state of the settings at the time the button is pressed.

When F1 (CLEAR WORK) is set to “USER”, this state is restored when you press the CLR WORK BUFR button.

### **Saving a state to be recalled at power on – F10 (POWER ON)**

- 1** Set the setup settings, three-dimensional transformation parameters, effects and so on to the required initial state.
- 2** In the OPERATION menu, press F10 (POWER ON).

This stores the state of the settings at the time the button is pressed.

When F2 (POWER ON) is set to “USER”, this state is restored when you power on the system.

# GPI Settings

Use this menu to set up the processor to accept and be controlled by GPI outputs from an editing control unit or other device.

To make these settings effective, set F5 (GPI IF) to "ENBL" in the OPERATION menu (*see page 9-6*).

With the first group of function key indications shown in the DME SETUP menu, press F5 (GPI) to display the GPI menu.

	PORT SELECT ↓	TRIGGER TYPE			SELECT		ACTION SELECT ↓	CH DELEGAT OFF	ON AIR TALLY ON
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

Function key indications in the GPI menu

The following is a typical operation carried out in this menu.

## Setting up the GPI inputs

This selects the trigger type and action to be carried out in response to each of the GPI input ports on the DME-7000/3000.

Use the following procedure.

- 1** Press F2 (PORT SELECT), to select the number of the GPI port for which you wish to make the setting.
- 2** Press F3 (TRIGGER TYPE) to select the trigger type. Pressing F3 cycles through the following possibilities.

⌋ : Trigger on the rising edge of an input pulse.

⌋ : Trigger on the falling edge of an input pulse.

⌋ : Trigger when the input changes polarity.

**LOW ACT:** When the GPI input goes low, the operating mode set as "ACTION" is established. The possible selections for "ACTION" are "4:3", "16:9", "525", and "625".

**HIGH ACT:** When the GPI input goes high, the operating mode set as "ACTION" is established. The possible selections for "ACTION" are "4:3", "16:9", "525", and "625".

**NOP:** No triggering by input pulse.



## GPI Settings

---

- 3** Press F8 (ACTION SELECT) and move the cursor to select the trigger action which is caused by the GPI input.  
  
**NO USE:** Ignore incoming GPI signals.  
**S.S. RECALL?:** Recall a snapshot.  
**EFF RECALL?:** Recall a key frame effect.  
**KF RUN:** Rewind and execute a key frame effect.  
**KF STOP:** Stop a key frame effect.  
**KF REWIND:** Rewind a key frame effect.  
**FREEZE:** Freeze the input signal to the DME.  
**FORWARD JITTER:** Each time the GPI signal is input, move forward one frame, and jitter, that is, display fields 1 and 2 alternately.  
**REWIND JITTER:** Carry out a jitter operation from the beginning of a key frame effect.  
**+1 FRAME:** Move a stopped key frame effect forward by one frame.  
**-1 FRAME:** Move a stopped key frame effect back by one frame.  
**+1 FIELD:** Move a stopped key field effect forward by one field.  
**-1 FIELD:** Move a stopped key field effect back by one field.  
**4:3:** Switch the screen aspect ratio to 4:3.  
**16:9:** Switch the screen aspect ratio to 16:9.  
**525:** Set the system operating mode to 525 lines.  
**625:** Set the system operating mode to 625 lines.
- 4** Press F5 (SELECT) to confirm the selection.
- 5** If you selected “EFF RECALL?” or “S.S. RECALL?” in step **3**, enter the number of the register from the numeric keypad.
- 6** Repeat steps **1** to **5** as necessary to carry out the settings for other input ports.

---

### **Coupling the ACTION caused by a GPI input to channel selection**

To make the “ACTION” effective only with respect to the currently selected channel(s), set F9 (CH DELEGAT) to “ON”. When F9 is set to “OFF”, the “ACTION” applies to all connected DME channels.

#### **Note**

Regardless of the setting of F9, the “4:3”, “16:9”, “525”, and “625” settings always apply to all channels.

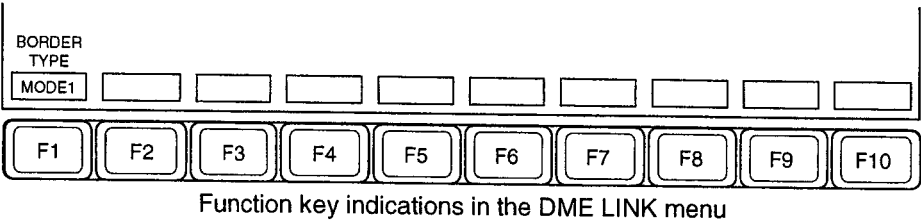
### **Outputting an on-air tally**

To output ON AIR TALLY from GPI OUT, set F10 (ON AIR TALLY) to “ON”.

# Settings for the DME LINK™ Function

These settings concern the execution of a transition with the fader lever and the control of the width of the border of a DME wipe pattern when using the “DME LINK” (“DME wipe”) function on a switcher connected to the DME unit.

With the first group of function key indications shown in the DME SETUP menu, press F6 (DME LINK) to display the DME LINK menu.



## Selecting the transition and border width control mode

**1** Press F1 (BORDER TYPE) to select the mode.

**MODE 1:** Regardless of the position of the fader lever, it controls both the transition and border width.

**MODE 2:** At either end of the travel of the fader lever, it controls only the border width, and in the center portion of its travel it controls only the transition.

**2** If you selected “MODE 2”, then adjust the following parameters.

Knob	Parameter	Setting
3	Trans Range	Set the portion of the fader lever travel which controls only the transition <sup>a)</sup> (0.00 to 100.00)
4	Width	Set maximum width of the border of DME wipe pattern (0.00 to 100.00)

a) For example, setting a value of 80.00 means that 10% of the travel from either end controls only the border width, and the center 80% of the travel controls only the transition.

# Displaying the Software Version

---

This function displays the software version of the processor and any installed option boards.

With the first group of function key indications shown in the DME SETUP menu, press F7 (INFORMATION) to display the INFORMATION menu, which displays the software version.

# Installing System Software

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This section describes how to install the BZDM-7020/3020 SYSTEM DISK 2 supplied with the BZDM-7720/3720 Operation Software.

If a new version of the software is issued, use the same procedure to install it.

## About the Operation Software

The BZDM-7720/3720 Operation Software has supplied with it two floppy disks: BZDM-7020/3020 SYSTEM DISK 1, for the control panel, and SYSTEM DISK 2, for the processor.

When you are using a BKDM-3010 DME Control Panel, install both SYSTEM DISK 1 and SYSTEM DISK 2 from the BKDM-3010.

If you are not using a BKDM-3010, install SYSTEM DISK 2 only, from the switcher control panel, using the procedure below.

*For details of the software which you need to install, see page 1-8.*

### Note

The BZDM-7720/3720 software is accompanied by software installation labels. These are required when the DME-7000/3000 is serviced, so you should affix them as follows.

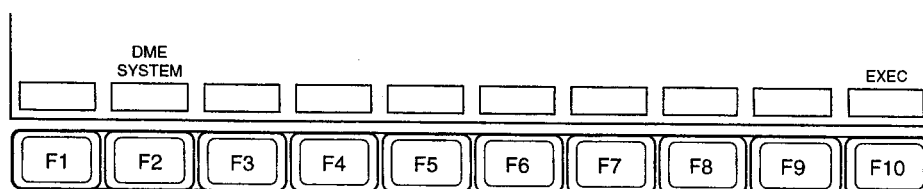
- Attach the label for "SYSTEM DISK 1" to the rear of the BKDM-3010 DME Control Panel.
- Attach the label for "SYSTEM DISK 2" to the rear panel of the DME-7000/3000 processor.

---

## Installation procedure

Use the following procedure.

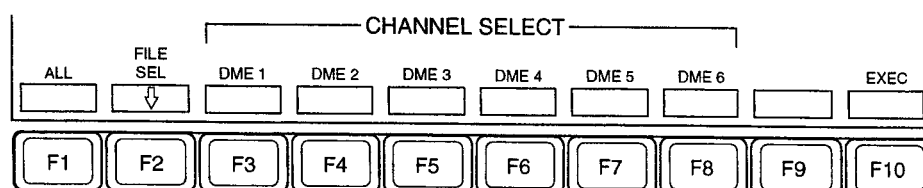
- 1 With the first group of function key indications shown in the DME SETUP menu, select F10 (INSTALL) to display the INSTALL menu.



Function key indications in the INSTALL menu

- 2 Insert the floppy disk labeled "SYSTEM DISK 2" in the floppy disk drive on the switcher control panel.
- 3 Press F2 (DME SYSTEM), then F10 (EXEC).

The function key indications change as follows, and the menu screen shows a list of the software included in SYSTEM DISK 2.



- 4 To install all of the software, press F1 (ALL).
- 5 To select the software to install, press F2 (FILE SEL), and align the cursor with the required software.
- 5 Press any combination of F3 (DME1) to F8 (DME6) to select the DME channel or channels on which you wish to install the software.

If you select more than one channel, the software installations are carried out in sequence.

(Continued)

## Installing System Software

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### 6 Press F10 (EXEC).

The function key indications change as follows.

								YES	NO
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

### 7 To install the software, press F9 (YES), and to abandon installing the software, press F10 (NO).

#### Installing software for option boards

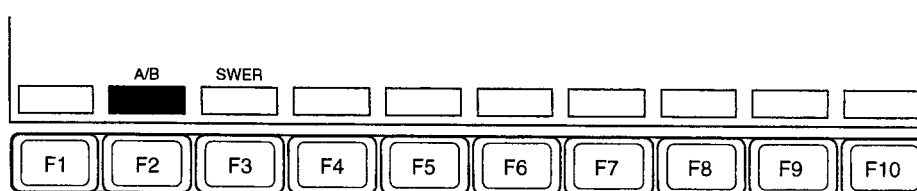
Insert the floppy disk supplied with the option board in place of SYSTEM DISK 2, and follow the same installation procedure as described above.

# Source Selector Settings

---

These settings determine whether or not a source selector is connected. It is possible to connect the DVS-7000 or other digital video switcher as source selectors to the DME-7000/3000.

With the second group of function key indications shown in the DME SETUP menu, press F3 (SOURCE SELECT) to display the SOURCE SELECTOR menu.



Function key indications in the SOURCE SELECTOR menu

The following are some of the operations carried out in this menu.

## **Setting when not using a source selector – F2 (A/B)**

When no source selector is connected, press F2 (A/B).

This allows the signals connected to the A and B inputs on the rear panel of the processor to be used directly as video and key signals.

## **Using a digital video switcher as source selector – F3 (SWER)**

When using the AUX bus of a DVS-7000 or other digital video switcher as source selector, press F3 (SWER).



# Input Signal Settings

These settings provide adjustment of the signals input to the DME-7000/3000 from the source selector.

*For the method of selecting the input signals, see page 5-3.*

With the second group of function key indications shown in the DME SETUP menu, press F4 (INPUT CONTRL) to display the INPUT CONTROL menu.

This menu does not appear, however, if F2 (A/B) is selected in the SOURCE SELECTOR menu. (See the previous page.)

BUTTON No.	SIGNAL TYPE	SIGNAL FORMAT	TBC CENTER	PHASE ADJUST	H SHIFT CANCEL				
	ANALG	0 IRE	1H		OFF				

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
----	----	----	----	----	----	----	----	----	-----

INPUT CONTROL menu

(F7 (H SHIFT CANCEL) appears only in a composite system.)

The following operation is carried out in this menu.

## Making the input signal settings

Use the following procedure.

- 1 Use one of the following methods to select the button number for the source selector (0 to 63).
  - Hold down F1 (BUTTON No.) and press the corresponding cross-point button in the auxiliary bus block.  
(When you are using the DVS-7000 AUX bus as the source selector)
  - Hold down F1 (BUTTON No.) and press the  $\uparrow$  and  $\downarrow$  buttons.
  - Hold down F1 (BUTTON No.) and turn knob 2.

The information for the number you have selected appears.

- 2 Press F3 (SIGNAL TYPE), to select "ANALOG" or "DIGITAL".

- 3** Press F4 (SIGNAL FORMAT), to select the signal format.  
Pressing F4 cycles through a range of possibilities, as follows.
- Composite systems: 0 IRE → 7.5 IRE
  - Component systems, 525 lines: SMPTE → B-CAM 0 → B-CAM 7.5
  - Component systems, 625 lines: EBU (display only)

**Note**

In a component system, this step is only valid if you selected “ANALOG” in step 2.

- 4** Depending on the input signal phase difference, press F5 (TBC CENTER) to change the center position of the time base corrector window.  
Pressing F5 cycles through the values 0H → 0.5H → 1.0H → 1.5H.  
The automatic correction range (the TBC window) is  $\pm 0.3H$  centered on the center position selected.  
When using a DVS-7000 or other digital video switcher as source selector, normally select 1H.

- 5** Press F6 (PHASE ADJUST), then adjust the following parameter.

Knob	Parameter	Setting
4	Phase	Set input phase (–8.03 to +8.03)

For an analog signal in composite mode also adjust the following parameter.

Knob	Parameter	Setting
3	SC	Set subcarrier phase (–100 to +100)

- 6** For a video input from a D2 VTR, press F7 (H SHIFT CANCEL), to set the value for color framing correction (H shift processing).

**OFF:** Do not cancel the H shift.

**LEFT:** Shift the horizontal phase of the video input signal 140 ns to the left, to cancel the H shift.

**RIGHT:** Shift the horizontal phase of the video input signal 140 ns to the right, to cancel the H shift.

The setting of F7 is saved separately for each button number.

## Input Signal Settings

---

### **D2 VTR color framing correction**

In an editing system using D2 VTRs, if a section of video which has passed through the DME is joined to a section which has not passed through the DME in a single scene, at the cut point there may be a dislocation in the horizontal phase. This occurs because the signal from the playback D2 VTR which has passed through the DME is still subject to a horizontal shift to correct the color framing. The reason for carrying out the horizontal shift on the playback VTR is as follows.

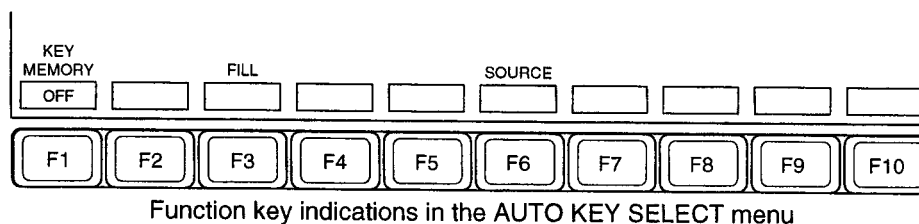
Because of the one frame delay for passing through the DME, the edit IN point is advanced one frame on the playback D2 VTR (playback begins one frame before the IN point). As a result, there is a phase difference in the color framing between the reference signal subcarrier and the playback signal. To correct for this phase difference, the image is output from the playback VTR with a horizontal shift (H shift processing).

# Automatic Key Signal Selection Settings

These settings assign the key signal to be selected automatically when a particular video signal is selected.

After making this assignment, the automatic selection will be carried out when F9 (AUTO SELECT) in the FRONT VIDEO menu (*see page 5-3*) is set to "ON".

With the second group of function key indications shown in the DME SETUP menu, select F5 (AUTO KEY) to display the AUTO KEY SELECT menu.



The following operations are carried out in this menu.

## Assigning a key source signal to a key fill signal – F3 (FILL) and F6 (SOURCE)

Use the following procedure.

- 1** Use one of the following methods to select the video signal (key fill) to which the assignment is to be made.
  - Hold down F3 (FILL) and press the corresponding cross-point button in the auxiliary bus block.<sup>a)</sup>
  - Hold down F3 (FILL) and press the  $\uparrow$  or  $\downarrow$  button.
  - Hold down F3 (FILL) and turn knob 2.
- 2** Use one of the following methods to select the video signal (key source) to be assigned to the signal you selected in step 1.
  - Hold down F6 (SOURCE) and press the corresponding cross-point button in the auxiliary bus block.<sup>a)</sup>
  - Hold down F6 (SOURCE) and press the  $\uparrow$  or  $\downarrow$  button.
  - Hold down F6 (SOURCE) and turn knob 3.

This assigns the key signal.

---

a) When you are using the DVS-7000 AUX bus as the source selector.

---

### **Saving the key settings for each input button (key memory function) – F1 (KEY MEMORY)**

Set F1 (KEY MEMORY) to “ON”.

Using the key memory function, it is possible to save the following mode and parameter settings for each input button:

- The clean key setting (Off/On) (page 4-10)
- The crop position (page 5-18)
- The key source type (INT/EXT/LUM) (page 5-5)
- The Clip value and Gain value (when “EXT” or “LUM” is selected) (page 5-45)
- The key signal inversion setting (Off/On) (page 5-5)
- The method of interpolation (ADP-YC/ADP-Y) (page 5-11)

# Initial Cropping Frame Settings

---

This menu controls the effective area of the image.

This setting determines the position of the image frame when the CROP function (*see page 4-18*) is not applied. Using the CROP function further restricts the effective image area from this initial setting.

With the second group of function key indications shown in the DME SETUP menu, press F6 (INIT CROP) to display the INITIAL CROP menu.

The following operation is carried out in this menu. Note that there are no function key operations.

## Setting the initial position of the image frame

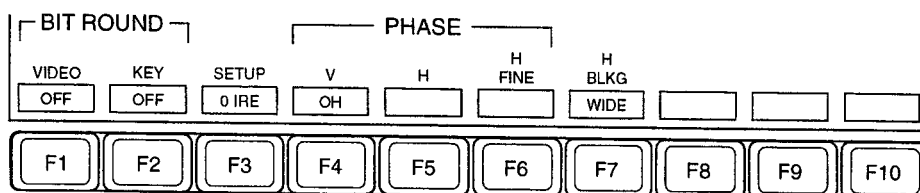
Adjust the following parameters.

Knob	Parameter	Setting
1	Top	Set position for top side. (–4.00 to +4.00)
2	Left	Set position for left side. (–5.00 to +5.00)
3	Right	Set position for right side. (–5.00 to +5.00)
4	Bottom	Set position for bottom side. (–4.00 to +4.00)

# Output Signal Settings

This menu controls the output signals from the DME-7000/3000.

With the second group of function key indications shown in the DME SETUP menu, press F7 (OUTPUT CONTRL) to display the OUTPUT CONTROL menu.



Function key indications in the OUTPUT CONTROL menu

The following operations are carried out in this menu.

## Switching the number of bits in an output video signal – F1 (VIDEO)

To switch the number of bits in an output video signal to 8, set F1 (VIDEO) to “ON”.

## Switching the number of bits in an output key signal – F2 (KEY)

To switch the number of bits in an output key signal to 8, set F2 (KEY) to “ON”.

## Setting the black setup level (composite systems only) – F3 (SETUP)

Press F3 (SETUP) to set the black setup level (minimum luminance level) to either 0 IRE or 7.5 IRE.

## Selecting the analog signal format (component mode only, with BKDM-3023 option installed) – F3 (ANALOG SIGNAL)

Press F3 (ANALOG SIGNAL) to select the analog component output signal format. Pressing F3 cycles through the following possibilities.

525-line systems: SMPTE → B-CAM0 → B-CAM7.5 → RGB

625-line systems: EBU → RGB

---

### **Adjusting the vertical output phase – F4 (V)**

To toggle the vertical phase between 0H and –1H (one scan line advance), press F4 (V).

### **Adjusting the horizontal output phase – F5 (H), F6 (H FINE)**

Use the following procedure.

- 1** Press F5 (H), then adjust the following parameters.

Knob	Parameter	Setting
3	VIDEO Phase	Set output phase of video signal.
4	KEY Phase	Set output phase of key signal.

- 2** In a composite system, to make a finer adjustment of the analog output signal phase, press F6 (H FINE), then adjust the following parameter.

Knob	Parameter	Setting
4	Phase Fine	Fine adjust the horizontal phase.

This adjusts the video signal and key signal simultaneously.

### **Adjusting the horizontal blanking width – F7 (H BLKG)**

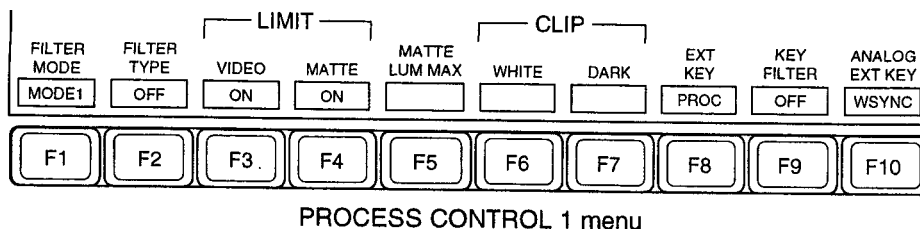
To make the horizontal blanking width of the output signal narrow, press F7 (H BLKG) to select “NARROW”, or to make it wide select “WIDE”.



# Signal Processing Settings 1

This menu selects settings for signal processing within the DME-7000/3000.

With the second group of function key indications shown in the DME SETUP menu, press F8 (PROC CTRL1) to display the PROCESS CONTROL 1 menu.



The following operations are carried out in this menu.

## Selecting the filter mode – F1 (FILTER MODE)

There are two modes of filter processing which can be applied to the video signal: press F1 (FILTER MODE) to toggle between them.

**MODE 1:** The filter corrections are such as to make the picture clearly visible even when compressed.

**MODE 2:** The filter corrections are such as to reduce aliasing problems when the picture is enlarged or compressed.

## Selecting the filter type – F2 (FILTER TYPE) (DME-7000 only)

Press F2 (FILTER TYPE) to toggle between the filter types.

**FLAT:** The filter is applied uniformly.

**DEPTH:** The strength of application of the filter is controlled for each individual pixel on the basis of the depth information.

## Setting the video signal color limiter – F3 (VIDEO) (DME-7000 only)

Set F3 (VIDEO) to “ON” to switch on the video signal color limiter, which prevents illegal colors from being generated.

## Setting the matte signal color limiter – F4 (MATTE)

Set F4 (MATTE) to “ON” to switch on the matte signal color limiter, which prevents illegal colors from being generated.

---

### Setting a maximum luminance limit for the matte signals – F5 (MATTE LUM MAX)

To set a maximum luminance limit for the matte signals, press F5 (MATTE LUM MAX), then adjust the following parameter.

Knob	Parameter	Setting
4	Lum max	Set maximum luminance (70.00 to 130.00 %)

### Setting minimum and maximum luminance limits for the video signals – F6 (WHITE) and F7 (DARK)

Use the following procedure.

- 1 To set a maximum limit, press F6 (WHITE), then adjust the following parameter.

Knob	Parameter	Setting
4	White Clip	Set white clip level (70.00 to 130.00 %)

- 2 To set a minimum limit, press F7 (DARK), then adjust the following parameter.

Knob	Parameter	Setting
3	Dark Clip	Set dark clip level (–40.00 to 0.00 %)

### Outputting an external key signal without processing – F8 (EXT KEY)

To output an external video signal without subjecting it to level processing in an internal key generator for example, press F8 (EXT KEY), to select “THRU” (through). To output the signal as processed internally, select “PROC” (process).

#### Note

When you select “Through”, it is no longer possible to use the following functions:

- Background mix
- Recursive
- Drop shadow
- Key clip
- Key gain
- Fade
- Combiner

## Signal Processing Settings 1

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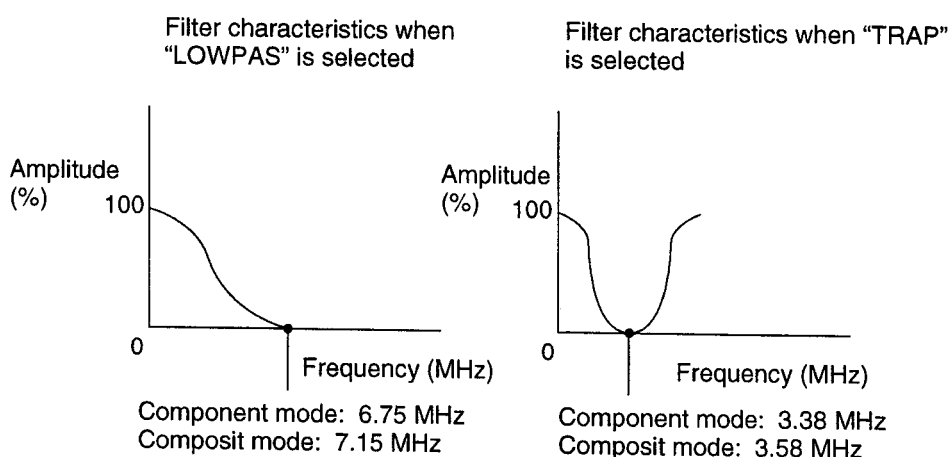
### Selecting the filter for the key signal – F9 (KEY FILTER)

Press F9 (KEY FILTER) to select the type of filter used when generating a key signal. Pressing F9 cycles through the following possibilities:

**OFF:** Use no filter.

**LOWPAS:** Use a low pass filter.

**TRAP:** Use a trap filter.



### Selecting whether an analog key signal has a synchronizing signal – F10 (ANALOG EXT KEY)

Select whether an analog key signal has a synchronizing signal as follows.

**WSYNC (with sync):** It has a synchronizing signal.

**WOSYNC (without sync):** It has no synchronizing signal.

When you select "WOSYNC", it is possible to input an analog key signal which has no synchronizing signal. However, in this case a video (Y) signal must be input.

# Signal Processing Settings 2

This menu selects settings for signal processing within the DME-7000/3000.

With the second group of function key indications shown in the DME SETUP menu, press F9 (PROC CTRL2) to display the PROCESS CONTROL 2 menu.

ADAPT MODE	WRAP AROUND								
2	OFF								
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10

PROCESS CONTROL 2 menu

The following operations are carried out in this menu.

## Selecting the method of interpolation processing for video signals – F1 (ADAPT MODE) (DME-7000 only)

If you set the method of interpolation for video signals to “ADP-YC” or “ADP-Y” in the INTERPOLATION menu (*see page 5-10*), select one of four levels (1 to 4) for the detection of motion in the video signal. The larger the setting value, the closer the processing approaches to frame processing, and the smaller the value, the closer to field processing.

**Frame processing:** The image accuracy is increased, and this is therefore appropriate for video with little motion.

**Field processing:** This is appropriate for video with much motion, giving a natural effect of movement.

The factory default setting is 2.

## Enabling or disabling virtual images – F2 (WRAP AROUND)

If you apply an extreme perspective effect, it is possible for parts of the image to be behind the notional viewpoint: these are called virtual images. Press F2 (WRAP AROUND) to toggle on and off the display of virtual images.

# Combiner

It is not possible to make combiner settings from the switcher control panel.

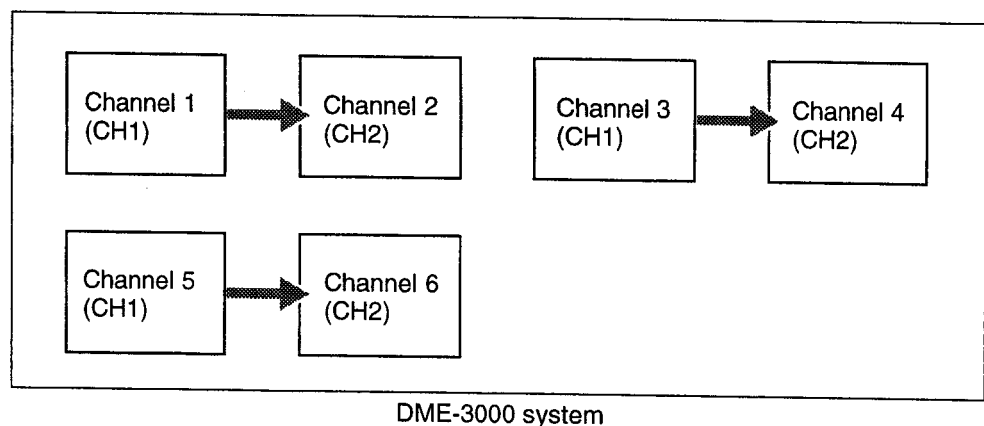
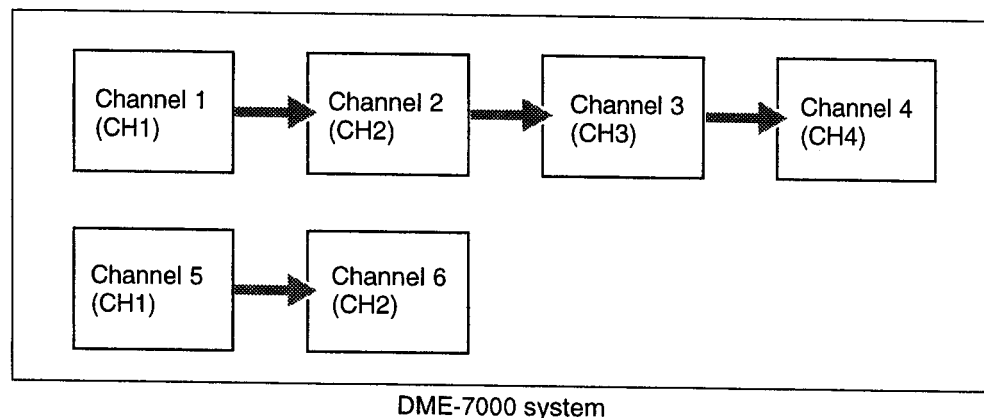
If you used the procedure described in the section “Channel Assignments” (page 1-11) to set the logical channels, then by default the combiner hierarchy is as shown below.

Make the input and output signal connections to the combiner to agree with these settings.

## Note

It is possible to set the combiner hierarchy from the BKDM-3010 DME Control Panel, but be sure to use settings in agreement with the following default settings.

In the figure the numbers in parenthesis are the DME logical channel numbers.




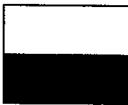














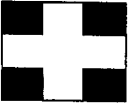




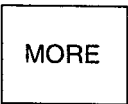
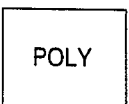

# Appendixes

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






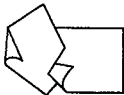





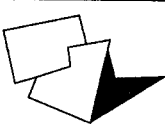
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# Wipe/Mix Patterns

1		3		5		6	
7		8		9		10	
13		14		15		16	
17		18		19		21	
22		23		24		26	
27		48		49		304	

# Drop Shadows: Dependence on Option Boards, Effect Type and Shadow Mode

Option boards fitted	Effect type	Shadow mode setting		
		AUTO	TARGET <sup>e)</sup>	3-D <sup>f)</sup>
No required	Overlap <sup>c)</sup>		—	—
	Non-overlap <sup>d)</sup>		—	—
BKDM-7060 <sup>a)</sup> (In 3D mode both the BKDM-7060 and BKDM-7070 are required.)	Overlap <sup>c)</sup>			—
	Non-overlap <sup>d)</sup>			
BKDM-3050 <sup>b)</sup>	Overlap <sup>c)</sup>		—	—
	Non-overlap <sup>d)</sup>		—	—
BKDM-7060 <sup>a)</sup> (In 3D mode both the BKDM-7060 and BKDM-7070 are required.)	Overlap <sup>c)</sup>			—
	Non-overlap <sup>d)</sup>			

a) Key channel/recursive effects board

b) Combiner/lighting board

c) Overlap: the “overlap nonlinear effects,” viz. page turn, roll, cylinder and sphere

d) Non-overlap: all nonlinear effects other than the “overlap nonlinear effects”, and three-dimensional linear transformations

e) It is only possible to select TARGET mode when the BKDM-7060 is fitted.

f) The 3D mode (advanced shadow mode) can only be selected when the BKDM-7060 and BKDM-7070 are both installed. This cannot be used simultaneously with nonlinear effects. This function is not available on the DME-3000.



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